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## Atomic Emission Lines in the Near Ultraviolet; Hydrogen Through Krypton Section II

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SECTION 2

## Technical Memorandum 80268



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# Atomic Emission Lines in the Near Ultraviolet; Hydrogen Through Krypton

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## Section II

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**APRIL 1979**

National Aeronautics and  
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ATOMIC EMISSION LINES IN THE NEAR ULTRAVIOLET;  
HYDROGEN THROUGH KRYPTON

SECTION II

Raymond L. Kelly  
Professor of Physics  
Naval Postgraduate School  
Monterey

April 1979

GODDARD SPACE FLIGHT CENTER  
Greenbelt, Maryland





ATOMIC EMISSION LINES IN THE NEAR ULTRAVIOLET;  
HYDROGEN THROUGH KRYPTON  
SECTION II

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ABSTRACT

A compilation of atomic lines from the first 36 elements observed in emission or absorption covering the wavelength range 2000Å-3200Å. Section I is the Multiplet List. Section II is the Finding List.



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# ATOMIC EMISSION LINES IN THE NEAR ULTRAVIOLET; HYDROGEN THROUGH KRYPTON

## INTRODUCTION

This compilation has been prepared from published literature available through October 1977, although some information from preprints and unpublished reports is included. It is intended as an aid to the stellar spectroscopist with the problem of identifying spectra obtained above the earth's atmosphere with satellites or rockets.

Spectra from the first 36 elements make up the compilation. In most cases, only those lines which have been actually observed in emission or absorption are listed. The wavelengths included range from 2000 Angstroms to 3200 Angstroms with some additional lines up to 3500 Angstroms. Only lines of stripped atoms are reported; no molecular bands are included.

## ARRANGEMENT OF THE TABLES

The tabulation is divided into two main sections. Section I lists the lines by spectrum, and Section II is the finding list of all the lines listed in Section I.

The entries in Section I are arranged by element (ordered by atomic number), with subdivision into the first spectrum, second spectrum, etc. Within each spectrum, the lines are arranged in order of increasing wavelengths. This means that in a multiplet with several lines, those lines may not be listed consecutively.

## WAVELENGTHS

Wavelengths above 2000 Angstroms are traditionally given as they are observed in air. We have listed both air wavelength and vacuum wavelength, the conversion utilizing Edlen's formula\*

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\*B. Edlen, J. Opt. Soc. Am. 43, 339 (1953).

for the dispersion of standard air. The vacuum wavenumber can of course be obtained from the reciprocal of the vacuum wavelength.

The accuracy of the wavelength varies with the date of observation (because of the wavelength standards) and also with the wavelength range covered, the type of equipment, etc. As a general guide, lines measured since 1960 and with wavelengths reported to a tenth of a milliangstrom have an uncertainty less than 2 milliangstrom; all other lines have uncertainties of at least two or three in the last figure given.

## INTENSITY

Only a single intensity is given for each line, selected where possible from the source in which the particular spectrum was reported as most prominent. The listed intensities have been normalized to a maximum value of 1000 for convenience in comparing the different references. The normalization procedure was usually a linear transformation of the intensities reported by the original authors, but logarithmic transformations have also been used. The normalization to a maximum of 1000 in this report was adopted as a compromise between the long-standing scale extending from 00 to 10 and some later publications with maximum intensities of 100,000 or even more.

As always, the comparison of intensities presents a most vexing problem, particularly when one reference overlaps another. There continues to be a need for a single, consistently used intensity scale. In most publications, the intensities are visual estimates of emulsion blackening. Such intensities are significant over only a limited range of wavelengths, for a particular source, operated in some particular way. For various reasons, intensities given by different observers are seldom compatible. The intensity figures, which must always be regarded as rather imprecise, have the following meaning: when two lines in a narrow wavelength region are reported with different intensities by the same observer, the one with the larger number will generally be the more intense.

## MULTIPLY NUMBERS

The multiplet numbers assigned by C. E. Moore (see the reference list) are given following the wavelength. Some lines missing from the multiplet tables are added, but overlapping lines with the same wavelength in a multiplet have not been listed twice.

## REFERENCES

References (listed in numerical order at the end of this report) are given with each spectral line to allow the reader to refer to the original publication.

## PROCEDURES

After a thorough literature search, the observed air or vacuum wavelengths, vacuum wave-numbers, and intensities were punched onto IBM cards. A computer program was written to check the internal consistency of the wavelength-wavenumber pair and to punch a new card when all the data were correct. A substantial number of typographical errors were discovered (and corrected) in this way. Undoubtedly others remained undiscovered, but it is hoped there will be few in the final data set.

When all the wavelength cards were completed, they were read onto magnetic tapes (by spectrum) and sorted by wavelength into a finding list. The listings were searched manually for duplicates and corrections made where errors were discovered.

It is anticipated that a great deal of further checking will be carried out in the future. This additional work will require checking the observed wavelengths against those calculated from transitions between the known energy levels. (A complete file of atomic energy levels is maintained at the Naval Postgraduate School's Spectroscopic Data Center.) Such checking will allow a better evaluation of the published classifications of the spectral lines, as well as providing a means of including the classification and the excitation energy of upper and lower states of the transition in subsequent publications. Grouping the transitions into multiplets will be somewhat simplified.



## DESCRIPTION OF THE TABLES

Column 1. Element and spectrum number

Column 2. Vacuum wavelength in Angstroms

Column 3. Air wavelength in Angstroms

Column 4. Intensity

Column 5. Multiplet number (U from the Ultraviolet Multiplet Table, ref. 488 and V from the Revised Multiplet Table, ref. 1015)

Column 6. Reference numbers

Column 7. Notes about the line

P Predicted value of wavelength given

F Forbidden line

A Upper level in the transition above the first ionization limit – may be autoionizing

N Unclassified

M Uncertain stage of ionization

Q Questionable classification

S Observed in solar spectrum

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
KR	II	2000.065	1999.419	4		509	CA	III	2002.050	2001.402	250		85
FE	III	2000.228	1999.582	200	81.	188	V	II	2002.08	2001.43	10	162.	478
CA	III	2000.311	1999.663	300		85	ZN	III	2002.276	2001.629	00		162
FE	II	2000.342	1999.696	10		645	CR	II	2002.30	2001.65	4	54.	340
CU	II	2000.3459	1999.6979	250	16.	612	V	II	2002.30	2001.65	40		478
NA	III	2000.396	1999.749	15		525	CR	III	2002.34	2001.69	2		490
CO	III	2000.45	1999.80	20		673	CL	II	2002.3463	2001.6982	100		613
CO	I	2000.54	1999.89	8		603	GE	II	2002.347	2001.700	1		676
CA	III	2000.567	1999.919	150		85	FE	III	2002.473	2001.826	60		188
CR	III	2000.57	1999.92	2		490	NI	I	2002.48	2001.83	20	44.	488
CR	I	2000.60	1999.95	35	48.	341	NE	II	2002.523	2001.875	70		563
CL	II	2000.6081	1999.4128	125		613	MN	II	2002.55	2001.91	60		328
AR	II	2000.6470	1999.9989	20		867	CO	III	2002.56	2001.91	0	50.	673
FE	III	2000.688	2000.041	40		188	CU	III	2002.565	2001.917	2		724
CO	III	2000.70	2000.06	0		673	CR	III	2002.600	2001.953	250	49.	893
CO	I	2000.77	2000.12	12	93.	603	CO	I	2002.66	2002.01	3		603
CR	III	2000.78	2000.13	2		490	CL	II	2002.7301	2002.0818	90		613
V	II	2000.79	2000.14	10		478	SE	I	2002.87	2002.22	30		588
KR	II	2000.929	2000.282	4		509	CR	III	2002.92	2002.27	1		490
FE	II	2001.015	2000.368	300	122.	488	CU	II	2002.92	2002.27	3		670
SE	I	2001.12	2000.47	10		588	CO	I	2002.97	2002.32	25	37.	603
NI	I	2001.14	2000.49	5	43.	488	CO	II	2002.974	2002.326	25		825
MN	II	2001.165	2000.520	80		328	CO	I	2003.09	2002.44	6		603
CR	I	2001.25	2000.60	20	48.	341	FE	III	2003.124	2002.477	25		188
CR	III	2001.37	2000.72	3		490	V	IV	2003.129	2002.480	100	5.	829
CR	II	2001.41	2000.76	5	236.	340	ZN	III	2003.179	2002.532	1		162
CU	III	2001.429	2000.781	50		724	AS	I	2003.19	2002.54	20	7.	480
V	II	2001.43	2000.78	5		478	AS	II	2003.205	2002.558	260		425
AS	II	2001.433	2000.785	260		425	FE	III	2003.233	2002.586	10		188
CO	II	2001.435	2000.787	12	4.	825	CR	III	2003.32	2002.67	1		490
NI	III	2001.49	2000.84	0		661	CR	II	2003.36	2002.71	10	31.	340
CA	III	2001.543	2000.895	300		85	CL	III	2003.37	2002.72	300		43
CO	III	2001.74	2001.09	100		673	CR	III	2003.40	2002.75	2		490
V	II	2001.79	2001.14	30		478	CO	III	2003.44	2002.79	0		673
FE	III	2001.814	2001.167	25	55.	188	V	II	2003.47	2002.82	0		478
AS	II	2001.843	2001.195	5		425	MG	III	2003.57	2002.92	7		2
CR	III	2001.881	2001.234	250		893	CA	III	2003.636	2002.987	250		85
FE	III	2001.909	2001.262	40	55.	188	CR	II	2003.64	2002.99	30	31.	340
CR	II	2002.01	2001.36	3	54.	340	KR	II	2003.656	2003.008	1		509
FE	III	2002.01	2001.36	4		188	V	I	2003.69	2003.04	8		489

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AR	II	2003.972	2003.325	10		506		CR	III	2005.78	2005.13	3		490	
MN	III	2003.985	2003.337	3		301		MN	II	2005.811	2005.165	15		328	
AS	I	2003.99	2003.34	300	7.	480		CR	II	2005.84	2005.19	3		340	
MN	II	2004.00	2003.35	20		328		NA	III	2005.866	2005.218	330		516	
CU	III	2004.016	2003.367	1		724		FE	III	2006.095	2005.447	4		188	
NI	II	2004.123	2003.475	3		835		MN	III	2006.111	2005.463	8		301	
FE	III	2004.143	2003.495	150	55.	188		CR	II	2006.15	2005.50	4	17.	340	
AS	II	2004.187	2003.538	5		425		CO	III	2006.19	2005.55	20	50.	673	
CR	I	2004.20	2003.55	5	49.	341		NA	III	2006.195	2005.547	270		516	
NI	II	2004.460	2003.812	1		835		CR	III	2006.23	2005.58	4		490	
SI	I	2004.494	2003.845	2		608		B	II	2006.3	2005.7	A		532	
MN	I	2004.501	2003.849	140		148		AS	II	2006.357	2005.708	4		425	
CR	III	2004.514	2003.870	90		893		FE	III	2006.360	2005.712	40		188	
FE	II	2004.529	2003.881	20	83.	488		CR	I	2006.41	2005.76	10	48.	341	
CR	II	2004.53	2003.88	35	32.	340		CR	III	2006.50	2005.85	4		490	
AR	II	2004.5583	2003.9096	20		867		V	II	2006.53	2005.88	15		478	
CO	III	2004.56	2003.91	5		673		V	II	2006.73	2006.08	0		478	
NE	II	2004.579	2003.930	10		563		V	I	2006.77	2006.12	9		489	
CL	III	2004.62	2003.97	0		43		FE	I	2006.909	2006.260	15		605	N
CO	I	2004.65	2004.00	10		603		FE	III	2006.914	2006.265	25	55.	188	
CR	II	2004.68	2004.03	5	32.	340		MN	III	2007.128	2006.479	50		301	
V	II	2004.68	2004.03	0		478		CR	II	2007.26	2006.61	10	17.	340	
NA	III	2004.864	2004.216	300		516		CR	III	2007.27	2006.82	4		490	
CR	II	2004.89	2004.24	10	53.	340		MN	II	2007.331	2006.682	15		328	
MN	II	2004.89	2004.32	1		328		CL	III	2007.49	2006.84	400		43	
NI	II	2004.914	2004.266	50	33.	835		V	II	2007.53	2006.88	80	147.	478	
CR	III	2004.92	2004.27	2		490		MN	III	2007.548	2006.899	8		301	
CO	III	2004.94	2004.29	3		673		CR	II	2007.56	2006.91	10	54.	340	
V	I	2004.96	2004.31	4		489		CR	III	2007.58	2006.93	5		490	
CR	II	2004.99	2004.34	35	32.	340		NE	II	2007.658	2007.009	80		563	
S	II	2005.03	2004.38	300		285		NI	I	2007.66	2007.01	35	46.	488	
MN	II	2005.21	2004.56	60		328		FE	II	2007.662	2007.013	120	187.	488	H
MN	III	2005.316	2004.668	2		301		GE	II	2007.688	2007.039	50	1.	676	
V	II	2005.42	2004.77	90	162.	478		MN	III	2007.742	2007.093	1		301	
NE	II	2005.476	2004.827	30		563		AR	II	2007.827	2007.178	10		506	
MG	III	2005.51	2004.86	60		2		CR	II	2007.83	2007.18	20	31.	340	
AR	II	2005.563	2004.914	30		506		FE	I	2007.864	2007.215	15		605	N
CR	I	2005.59	2004.94	8	49.	341		ZN	III	2007.947	2007.298	20		162	
FE	III	2005.613	2004.965	4		188		S		2008.	2007.			107	N
FE	III	2005.731	2005.083	40	55.	188		TI	III	2008.009	2007.360	25		227	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	II	2008.04	2007.39	10	31.	340	
CR	III	2008.05	2007.40	3		490	
FE	II	2008.101	2007.452	150	83.	488	H
GE	I	2008.188	2007.539	30		7	
TI	III	2008.254	2007.604	7		227	
MG	III	2008.27	2007.62	3		2	
V	II	2008.31	2007.66	25	126.	478	
NI	I	2008.34	2007.69	20	23.	488	
FE	II	2008.360	2007.711	120	83.	488	H
FE	III	2008.494	2007.845	90	55.	188	
V	I	2008.51	2007.86	1		489	
MN	II	2008.55	2007.90	3		328	
MG	III	2008.56	2007.91	2		2	
CR	III	2008.64	2007.99	2		490	
CO	I	2008.69	2008.04	15		603	
CO	I	2008.93	2008.28	5	38.	603	
CR	III	2009.05	2008.40	1		490	
SI	I	2009.089	2008.439	15	6.	608	
FE	III	2009.118	2008.469	40	55.	188	
NA	III	2009.120	2008.471	330		516	
MN	III	2009.30	2008.65	3		301	
V	I	2009.35	2008.70	10	51.	489	
MG	III	2009.42	2009.77	7		2	
CO	I	2009.50	2008.85	8		603	
MN	II	2009.71	2009.06	1		328	
AS	I	2009.84	2009.19	100	23.	480	
CO	I	2009.89	2009.24	9		603	
CU	II	2009.97	2009.32	0		670	
C	III	2009.977	2009.327	20	11.71	34	
NA	III	2009.978	2009.328			525	
MN	II	2010.14	2009.48	3		328	
CR	III	2010.15	2009.50	1		490	
V	I	2010.19	2009.54	8		489	
C	III	2010.220	2009.570	70	11.71	34	
ZN	IV	2010.289	2009.612	75		154	
NI	II	2010.411	2009.761	2		835	
CR	III	2010.46	2009.81	2		490	
FE	II	2010.669	2010.021	10		645	
AS	I	2010.70	2010.04	20		480	
C	III	2010.740	2010.094	110	11.71	34	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CO	I	2010.75	2010.10	8	37.	603	
CR	III	2010.75	2010.10	1		490	
V	II	2010.80	2010.15	5	95.	478	
FE	III	2011.031	2010.383	25	.	188	
SC	III	2011.070	2010.422	320	4.	855	
V	I	2011.13	2010.48	20	52.	489	
CO	III	2011.25	2010.60	50		673	
V	I	2011.31	2010.66	2		489	
CR	III	2011.32	2010.67	5		490	
FE	II	2011.336	2010.688	250	122.	488	H
TI	III	2011.450	2010.800	60		227	
MN	III	2011.568	2010.920	20		301	
AS	II	2011.513	2010.926	5		425	
SI	I	2011.624	2010.974	30	6.	608	
FE	II	2011.635	2010.987	0		292	
CO	I	2011.72	2011.07	5	94.	603	
CR	II	2011.78	2011.13	20	3.	340	
AR	II	2011.791	2011.141	10		506	
CR	III	2011.792	2011.143	120		893	
KR	II	2011.792	2011.144	4		509	
V	IV	2011.830	2011.180	40	5.	829	
MN	III	2011.933	2011.285	50	17.	301	
GE	I	2011.943	2011.293	50	15.	7	
V	I	2011.98	2011.33	4		489	
CL	III	2011.99	2011.34	100		43	
CO	II	2012.156	2011.506	50	4.	825	
V	I	2012.19	2011.54	15	63.	489	
FE	III	2012.192	2011.544	40	86.	188	
CR	III	2012.21	2011.56	2		490	
MN	III	2012.236	2011.588	20	17.	301	
CO	III	2012.27	2011.62	200	50.	673	
FE	III	2012.310	2011.662	4	86.	188	
CO	I	2012.42	2011.77	8		603	
CR	III	2012.48	2011.83	2		490	
Y	I	2012.48	2011.83	3		489	
NA	III	2012.515	2011.866	450		516	
FE	III	2012.539	2011.890	25		188	
ZN	III	2012.567	2011.918	35		162	
MN	II	2012.579	2011.928	100		328	
ZN	II	2012.590	2011.941	100		457	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2012.769	2012.119	100		328		CA	III	2014.754	2014.104	250		85	
CR	II	2012.77	2012.12	4	53.	340		FE	II	2014.760	2014.111	1		645	
NI	II	2012.797	2012.148	4		835		NA	III	2014.820	2014.171	330		516	
NE	II	2012.799	2012.149	40		563		V	II	2014.83	2014.18	90	162.	478	
CR	II	2012.86	2012.21	25	17.	340		V	IV	2014.849	2014.199	40	5.	829	
FE	II	2012.895	2012.246	20		645		NI	I	2014.90	2014.25	60	47.	488	
CR	III	2012.906	2012.257	150	53.	893		AR	II	2014.962	2014.311	10		506	
SC	III	2012.906	2012.257	100	4.	855		B	II	2015.	2014.			126	
V	I	2013.00	2012.35	20	63.	489		SI	I	2015.007	2014.356	3		370	
MN	III	2013.064	2012.415	5		301		NE	II	2015.018	2014.367	5		563	
CR	II	2013.08	2012.43	10	53.	340		FE	II	2015.083	2014.434	4		645	
CR	III	2013.09	2012.44	5		490		CO	I	2015.23	2014.58	20		603	
CR	II	2013.23	2012.58	20	53.	340		CR	III	2015.340	2014.691	300	53.	893	
V	II	2013.29	2012.64	10	96.	478		FE	III	2015.453	2014.804	4		189	
FE	III	2013.330	2012.681	40	86.	188		MN	III	2015.484	2014.835	5		301	
CO	III	2013.38	2012.73	20	50.	673		SI	II	2015.57	2014.92	0	15.03	678	
CR	II	2013.39	2012.74	10	249.	340		NI	II	2015.648	2014.998	2		835	
AS	I	2013.41	2012.76	15	24.	480		V	II	2015.67	2015.02	15	126.	478	
CR	III	2013.42	2012.77	4		490		V	I	2015.69	2015.04	0		489	
MN	II	2013.446	2012.799	30		328		FE	III	2015.720	2015.070	25	86.	188	
V	II	2013.49	2012.84	20	147.	478		AR	II	2015.9675	2015.3168	20		867	
ZN	II	2013.560	2012.911	15		154		V	I	2016.06	2015.41	4		489	
ZN	III	2013.560	2012.911	15		162		CR	III	2016.08	2015.43	3		490	
CU	II	2013.6347	2012.9844	25	80.	612		FE	II	2016.150	2015.500	200	83.	488	H
V	I	2013.74	2013.09	3		489		P	IV	2016.203	2015.552	1		937	
MN	II	2013.807	2013.157	20		328		V	II	2016.21	2015.56	20	147.	478	
CU	III	2013.876	2013.225	170		724		CU	II	2016.2298	2015.5791	15	18.	612	
FE	II	2013.917	2013.268	150	83.	488	H	V	II	2016.39	2015.74	20	96.	478	
O	III	2013.92	2013.27	360		72		C	III	2016.4	2015.7	1	42.	34	Q
AS	I	2013.97	2013.32	100	23.	480		CO	III	2016.47	2015.82	20		673	
MN	III	2014.153	2013.504	100	17.	301		AL	II	2016.5150	2015.8652	70		379	
MG	III	2014.20	2013.55	2		2		CR	II	2016.52	2015.87	15	30.	340	
CR	II	2014.30	2013.65	40	3.	340		CO	I	2016.65	2015.99	4		603	
FE	II	2014.315	2013.666	10		645		CO	III	2016.69	2016.04	10		673	
CR	III	2014.476	2013.827	350	53.	893		AL	II	2016.7022	2016.0523	150		379	
MG	III	2014.49	2013.84	3		2		FE	II	2016.742	2016.092	100	187.	488	
CO	III	2014.53	2013.88	200		673		CO	I	2016.82	2016.17	15	91.	603	
MN	II	2014.545	2013.895	100		328		AL	IV	2016.84	2016.19	30		888	
AL	III	2014.626	2013.973	D 10		826		AL	II	2016.8436	2016.1937	80		379	
ZN	III	2014.649	2014.000			162		MN	II	2016.85	2016.20	5		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
AL	II	2016.8843	2016.2344	150		379		C	II	2018.59	2017.94	4	18.	287	
CR	II	2016.92	2016.27	7		340		V	I	2018.69	2018.04	00		489	
MN	III	2016.969	2016.319	30	17.	301		NA	IV	2018.788	2018.137	110		459	
CR	III	2016.97	2016.32	3		490		MN	III	2018.867	2018.216	10		301	
AL	II	2016.9850	2016.3351	50		379		LI	III	2018.890	2018.239			309	
NI	I	2017.01	2016.36	00	45.	488		MN	III	2018.950	2018.297	40		802	
AL	II	2017.0182	2016.3682	100		379		MN	I	2018.987	2018.332	4		148	
ZN	II	2017.098	2016.448	25		154		C	II	2019.03	2018.38	10	18.	287	
FE	I	2017.166	2016.512	5	84.	605		NA	IV	2019.035	2018.384	450		459	
V	II	2017.18	2016.53	60	96.	478		NE	IV	2019.092	2018.441	90		71	
O	II	2017.25	2016.60	200		36		MN	III	2019.102	2018.451	80	17.	301	
SI	II	2017.304	2016.654	3	15.03	678		CR	III	2019.217	2018.566	4		893	
CR	III	2017.31	2016.66	2		490		FE	III	2019.225	2018.574	25		188	
FE	III	2017.363	2016.713	25		188		ZN	III	2019.225	2018.574	3		162	
MG	III	2017.40	2016.75	3		2		NE	II	2019.302	2018.651	5		563	
KR	II	2017.436	2016.786	4		509		CA	III	2019.348	2018.697	300		85	
MN	III	2017.468	2016.818	2		301		AR	II	2019.4067	2018.7553	20		867	
C	III	2017.49	2016.84	5	42.	34		FE	II	2019.423	2018.772	250	94.	488	H
CU	II	2017.5442	2016.8931	10	15.	612		NI	II	2019.683	2019.032	50	43.	835	
CR	II	2017.55	2016.90	7	3.	340		GE	I	2019.7198	2019.0684	70	4.	7	
CR	III	2017.59	2016.94	2		490		CR	III	2019.78	2019.13	1		490	
NA	III	2017.675	2017.025	360		516		NA	IV	2019.840	2019.189	360		459	
MN	II	2017.70	2017.05	40		328		MG	III	2019.87	2019.22	2		2	
CR	III	2017.74	2017.09	3		490		GE	III	2019.88	2019.22	2		406	
FE	I	2017.740	2017.090	15		605	N	ZN	II	2020.049	2019.398	25		154	
FE	II	2017.740	2017.090	150	83.	488	H	CO	III	2020.06	2019.41	30		673	
MN	II	2017.82	2017.17	5		328		V	II	2020.12	2019.47	10	96.	478	
NA	III	2017.88	2017.23	30		516		CR	III	2020.21	2019.56	1		490	
CO	I	2017.92	2017.26	4		603		NI	II	2020.399	2019.748	5		835	
FE	III	2017.946	2017.296	40		188		FE	II	2020.483	2019.832	10		645	
V	II	2017.98	2017.32	2		478		CR	II	2020.53	2019.88	2		340	
V	II	2018.11	2017.46	2	126.	478		CR	III	2020.62	2019.97	0		490	
CR	II	2018.13	2017.48	2	17.	340		CO	III	2020.78	2020.12	50		673	
CR	III	2018.19	2017.54	1		490		MN	II	2020.790	2020.141	30		328	
CU	II	2018.26	2017.60	0		670		CO	I	2020.83	2020.18	2		603	
TI	V	2018.27	2017.61	4		727		CL	III	2020.84	2020.19	300		43	
MN	I	2018.284	2017.630	3		148		V	I	2020.95	2020.30	2		489	
CR	III	2018.48	2017.83	2		490		CR	II	2020.96	2020.31	1	17.	340	
FE	II	2018.505	2017.855	20	186.	488		CR	III	2020.99	2020.34	2		490	
MG	III	2018.58	2017.93	2		2		O	II	2021.04	2020.39	200		36	P

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
V	II	2021.19	2020.54	10	96.	478		NA	III	2022.947	2022.295	270		516	
CO	I	2021.21	2020.56			603		CO	II	2023.000	2022.348	75	4.	825	
CR	II	2021.34	2020.69	10	17.	340		MG	III	2023.06	2022.40	3		2	
CR	III	2021.37	2020.72	6		490		MN	III	2023.349	2022.698	1		802	
FE	II	2021.390	2020.739	250	83.	488	H	V	II	2023.35	2022.66	15		478	
CA	III	2021.424	2020.772	250		85		AR	II	2023.38	2022.73	10		508	
V	II	2021.48	2020.83	15	126.	478		FE	II	2023.428	2022.776	10	361.	488	
NI	II	2021.632	2020.981	50	43.	835		O	II	2023.61	2022.96	4		168	P
MN	III	2021.659	2021.008	5		301		KR	II	2023.630	2022.978	1		509	
MN	II	2021.664	2021.023	5		328		AR	II	2023.7681	2023.1159	20		867	
P	I	2021.81	2021.15	5		496		FE	II	2023.800	2023.150	2		645	
MN	III	2021.886	2021.234	5		301		CO	I	2023.82	2023.17	4		603	
NI	I	2021.97	2021.32	0		602		MN	III	2023.864	2023.214	50	17.	301	
ZN	II	2022.002	2021.350	50		154		NA	III	2023.877	2023.227	180		516	
MN	III	2022.003	2021.351	35		802		FE	III	2023.944	2023.289	4		188	
V	II	2022.04	2021.38	10		478		CR	III	2023.97	2023.32	4		490	
AS	II	2022.096	2021.444	5		425		P	I	2024.14	2023.48	100	10.	436	
CL	III	2022.11	2021.46	300		43		CR	III	2024.16	2023.51	4		490	
O	II	2022.18	2021.53	100		36	P	V	II	2024.21	2023.56	50	162.	478	
CR	II	2022.21	2021.56	20	53.	340		MN	II	2024.28	2023.63	5		328	
CR	III	2022.232	2021.580	60		893		FE	II	2024.365	2023.715	10	187.	488	H
MN	III	2022.296	2021.644	10		301		O	III	2024.61	2023.96	160		72	
V	I	2022.33	2021.72	0	50.	489		MG	III	2024.63	2023.98	3		2	
AR	II	2022.41	2021.76	5		506		CR	II	2024.68	2024.02	2		340	
CR	III	2022.43	2021.78	2		490		CR	III	2024.68	2024.03	3		490	
SE	I	2022.45	2021.80	40		600		CR	II	2024.86	2024.20	2	30.	340	
MN	II	2022.48	2021.83	50		328		CL	III	2024.87	2024.22	300		43	
V	II	2022.49	2021.83	5	126.	478		CR	III	2024.88	2024.23	1		490	
CR	II	2022.54	2021.89	5	29.	340		MG	III	2024.94	2024.29	7		2	
CR	III	2022.60	2021.95	2		490		CU	I	2024.990	2024.335	140	5.	672	
V	I	2022.63	2021.98	1	50.	489		SI	I	2024.997	2024.345	0		608	
AS	II	2022.658	2022.005	20		425		AS	I	2025.00	2024.34	5		480	
FE	III	2022.685	2022.033	4		188		MN	II	2025.00	2024.35	2		328	
AL	II	2022.7324	2022.0806	40		379		CR	I	2025.01	2024.36	1	46.	488	
CR	II	2022.76	2022.10	12	29.	340		NI	I	2025.02	2024.37	0		602	
NE	IV	2022.842	2022.192	160		71		CR	III	2025.10	2024.45	2		490	
MN	III	2022.843	2022.191	300	17.	301		CO	III	2025.12	2024.47	30		673	
CU	II	2022.85	2022.19	1		670		SE	I	2025.13	2024.48	30		568	
P	I	2022.85	2022.20	20		496		P	I	2025.18	2024.52	70	10.	496	
GE	III	2022.89	2022.25	4		406		MN	III	2025.317	2024.666	10		301	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	2025.34	2024.68	10		603		MN	III	2027.589	2026.938	20	11.	301	
AR	II	2025.385	2024.733	20		506		CO	II	2027.681	2027.028	50	4.	825	
MN	III	2025.415	2024.764	8		301		MN	III	2027.746	2027.095	5	11.	301	
V	II	2025.50	2024.84	0	95.	478		CU	II	2027.7855	2027.1327	10	17.	612	
MN	III	2025.680	2025.029	6		301		V	IV	2027.797	2027.144	1		829	
V	I	2025.69	2025.04	3		489		AS	II	2027.801	2027.148	0		425	
ZN	III	2025.699	2025.048	0		162		MN	III	2027.964	2027.312	4	11.	301	
AR	II	2025.8367	2025.1842	30		867		S		2028.	2027.			107	N
FE	III	2025.947	2025.292	1		189		F	III	2028.088	2027.435	300		537	
NI	I	2026.05	2025.40	50	22.	488		V	I	2028.27	2027.62	40	50.	469	
MN	II	2026.11	2025.46	5		328		CA	III	2028.320	2027.667	120		85	
V	II	2026.12	2025.47	15	95.	478		CR	II	2028.35	2027.69	8	249.	340	
MN	III	2026.13	2025.48	60		301		CO	I	2028.43	2027.77	3		603	
ZN	II	2026.137	2025.486	300	1.	457		FE	II	2028.430	2027.778	50	186.	488	H
CU	II	2026.1413	2025.4887	75	17.	612		MN	III	2028.487	2027.835	1000	17.	301	
CR	III	2026.177	2025.526	90		893		NI	III	2028.69	2028.04	1		661	
FE	III	2026.213	2025.557	25		188		NI	II	2028.787	2028.135	3		835	
NE	II	2026.213	2025.560	80		563		CR	I	2028.79	2028.13	12	47.	341	
CR	II	2026.24	2025.58	5	2.	340		MN	III	2028.800	2028.148	500		301	
MN	III	2026.382	2025.731	6		301		FE	II	2028.821	2028.169	0		645	
MN	IV	2026.404	2025.750	350		799		CA	I	2028.909	2028.257			101	A
CO	II	2026.404	2025.751	30	3.	825		CA	I	2028.931	2028.279			101	A
CR	III	2026.41	2025.76	5		490		CA	I	2028.951	2028.299			101	A
MG	I	2026.477	2025.824	35	2.	1017		CA	I	2028.974	2028.322			101	A
NI	I	2026.50	2025.84	0		602		CR	I	2028.99	2028.33	10	47.	341	
SE	I	2026.51	2025.86	30		588		CR	III	2028.991	2028.339	10		893	
CR	I	2026.52	2025.86	15	47.	341		CA	I	2028.996	2028.344			101	A
FE	III	2026.694	2026.038	40		168		CA	I	2029.020	2028.368			101	A
CA	III	2026.703	2026.050	250		65		CA	I	2029.044	2028.392			101	A
MN	III	2026.827	2026.176	6		301		CA	I	2029.070	2028.418			101	A
CO	I	2027.01	2026.35	8		603		V	I	2029.08	2028.42	40	50.	489	
NI	I	2027.06	2026.41	5		602		CA	I	2029.097	2028.445			101	A
CR	I	2027.10	2026.44	12		341		CA	I	2029.124	2028.472			101	A
CR	III	2027.10	2026.45	1		490		CA	I	2029.154	2028.502			101	A
CO	I	2027.16	2026.51	6	37.	603		NI	II	2029.165	2028.513	6		835	
MN	II	2027.19	2026.54	40		328		CA	I	2029.185	2028.533			101	A
CA	III	2027.242	2026.589	120		85		ZN	III	2029.199	2028.547	1		162	
AR	II	2027.255	2026.602	20		506		NA	III	2029.206	2028.554	360		516	
NI	I	2027.27	2026.62	100	19.	488		AR	II	2029.211	2028.558	10		506	
CO	I	2027.452	2026.794	M		603		CA	I	2029.217	2028.565			101	A



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	III	2029.23	2028.58	50		673		CA	I	2030.371	2029.719			101	A
CA	I	2029.250	2028.598			101	A	CO	I	2030.44	2029.78	8		603	
CA	I	2029.285	2028.633			101	A	CA	I	2030.473	2029.821			101	A
CA	I	2029.322	2028.670			101	A	CR	III	2030.50	2029.84	1		340	
CR	I	2029.33	2028.68	5	46.	488		NI	I	2030.54	2029.88	0		602	
ZN	III	2029.334	2028.682	1		162		CR	III	2030.54	2029.89	1		490	
CR	II	2029.35	2028.69	5		340		CA	I	2030.581	2029.929			612	A
CR	III	2029.35	2028.70	3		490		CU	II	2030.6003	2029.9470	15	81.	603	
CA	I	2029.360	2028.708			101	A	CO	I	2030.65	2029.99	8		101	A
CA	I	2029.401	2028.749			101	A	CA	I	2030.699	2030.047				
CA	I	2029.443	2028.791			101	A	MN	II	2030.750	2030.098	20		328	
CA	I	2029.488	2028.836			101	A	CR	I	2030.81	2030.15	1		341	
AS	I	2029.51	2028.86	2		480		CR	III	2030.82	2030.17	1		490	
CR	II	2029.52	2028.86	5		340		CA	I	2030.824	2030.172			101	A
CA	I	2029.536	2028.884			101	A	CA	I	2030.959	2030.306			101	A
V	II	2029.54	2028.88	15		478		F	III	2030.973	2030.320	450		537	
CR	III	2029.54	2028.89	3		490		SC	VI	2031.0	2030.3			108	F
ZN	II	2029.542	2028.890	35		154		CA	I	2031.105	2030.452			101	A
CA	I	2029.586	2028.934			101	A	MN	III	2031.152	2030.499	20		301	
CA	I	2029.637	2028.985			101	A	CA	I	2031.263	2030.610			101	A
CA	I	2029.694	2029.042			101	A	CR	III	2031.263	2030.610	120		993	
NI	II	2029.750	2029.098	2		835		ZN	III	2031.303	2030.650	15		162	
CA	I	2029.752	2029.100			101	A	CO	III	2031.33	2030.68	2		673	
CR	III	2029.77	2029.12	1		490		CR	III	2031.413	2030.760	250		893	
CA	I	2029.814	2029.162			101	A	FE	III	2031.423	2030.767	10		188	
FE	II	2029.834	2029.182	80	93.	488	H	CA	I	2031.432	2030.779			101	A
NI	II	2029.859	2029.207	50	43.	835		NE	II	2031.446	2030.793	30		563	
CA	I	2029.880	2029.228			101	A	CR	III	2031.50	2030.85	20		490	
NI	I	2029.94	2029.29	15	44.	488		MN	III	2031.536	2030.883	1		301	
CA	I	2029.950	2029.298			101	A	CA	I	2031.617	2030.964			101	A
V	I	2030.02	2029.36	50	50.	489		CU	II	2031.6891	2031.0356	45	79.	612	
CA	I	2030.024	2029.372			101	A	NA	III	2031.782	2031.129	360		516	
MN	III	2030.061	2029.409	80	17.	301		CA	I	2031.818	2031.165			101	A
CR	I	2030.08	2029.42	15	47.	341		MN	II	2031.85	2031.20	30		328	
CA	I	2030.102	2029.450			101	A	FE	II	2031.883	2031.230	1		645	
ZN	II	2030.116	2029.464	50		154		CR	I	2031.93	2031.27	15		341	
FE	III	2030.178	2029.522	10		188		CR	III	2031.93	2031.28	1		490	
CA	I	2030.187	2029.535			101	A	V	III	2032.01	2031.35	25		325	
ZN	II	2030.211	2029.559	20		154		CA	I	2032.036	2031.383			101	A
CA	I	2030.275	2029.623			101	A	V	II	2032.06	2031.40	30		478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	III	2032.167	2031.514	100	11.	301		CR	I	2033.61	2032.95	5	47.	341	
FE	II	2032.214	2031.561	1		645		MN	III	2033.699	2033.046	50		301	
CA	I	2032.275	2031.622			101	A	CO	III	2033.73	2033.07	3		673	
CR	III	2032.29	2031.64	1		490		KR	II	2033.752	2033.099	1		509	
MN	III	2032.405	2031.748	45		802		CL	II	2033.8063	2033.1525	160		613	
CO	III	2032.46	2031.81	100				KR	II	2033.870	2033.217	25		509	
CA	I	2032.536	2031.883			101	A	CA	I	2033.876	2033.223			101	A
CR	III	2032.58	2031.93	3		490		F	III	2033.922	2033.268	12		537	
CO	II	2032.605	2031.951	9		825		CL	II	2033.9226	2033.2686	122		613	
CO	I	2032.62	2031.96	15	33.	603		MG	III	2033.93	2033.27	2		2	
FE	II	2032.643	2031.990	20		645		CR	III	2033.93	2033.28	1		490	
MN	III	2032.753	2032.100	20		301		V	I	2033.94	2033.28	8		489	
V	I	2032.76	2032.10	5		489		CA	III	2034.012	2033.358	350		65	
CL	II	2032.7695	2032.1157	210		613		CL	II	2034.0285	2033.3744	75		613	
CL	III	2032.80	2032.15	300		43		NI	II	2034.045	2033.391	3	15.	835	
CL	II	2032.8042	2032.1505	170		613		KR	II	2034.110	2033.456	4		509	
MN	II	2032.81	2032.16	10		328		P	I	2034.13	2033.47	150	10.	496	
CR	III	2032.82	2032.17	5		490		V	II	2034.16	2033.50	10		478	
CA	I	2032.823	2032.170			101	A	NI	I	2034.21	2033.56	10	39.	488	
AR	II	2032.8316	2032.1778	30		867		ZN	II	2034.222	2033.568	20		154	
CL	II	2032.9236	2032.2698	30		613		MN	III	2034.236	2033.582	7		301	
V	I	2032.93	2032.27	60	50.	489		CR	III	2034.24	2033.59	20		490	
NI	II	2032.957	2032.304	25	33.	835		CO	III	2034.26	2033.61	5		673	
MN	III	2032.966	2032.313	5		301		CA	I	2034.307	2033.653			101	A
F	III	2032.968	2032.314	50		537		FE	II	2034.402	2033.748	10.		645	
CR	III	2033.01	2032.36	1		490		MN	III	2034.414	2033.760	5		301	
FE	II	2033.060	2032.407	250	94.	488		ZN	III	2034.448	2033.794	10		162	
P	I	2033.09	2032.43	80	10.	496	H	CL	II	2034.5425	2033.8884	90		613	
CR	III	2033.13	2032.48	1		490		MN	II	2034.58	2033.93	50		328	
CA	I	2033.139	2032.486			101	A	CL	II	2034.6476	2033.9936	122		613	
BE	I	2033.254	2032.600	10		333		CL	II	2034.7072	2034.0529	85		613	
FE	II	2033.254	2032.601	20		645		V	I	2034.72	2034.06		50.	489	
CR	III	2033.27	2032.52	1		490		CA	I	2034.789	2034.135			101	A
BE	I	2033.281	2032.628	20		333		CR	III	2034.851	2034.197	25		893	
CR	I	2033.31	2032.65	1		341		CR	I	2034.90	2034.24	35	47.	341	
BE	I	2033.378	2032.724	30		333		CO	III	2034.94	2034.29	10		673	
CO	II	2033.38	2032.73	18	19.	825		FE	III	2034.953	2034.296	25		188	
CA	I	2033.488	2032.835			101	A	KR	II	2035.075	2034.421	1		509	
MG	III	2033.58	2032.92	7		2		NI	I	2035.09	2034.44	50	43.	488	
CR	III	2033.59	2032.94	1		490		FE	II	2035.115	2034.461	10	186.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	2035.15	2034.49	8		603		FE	III	2036.663	2036.006	10		188	
MN	III	2035.154	2034.500	100	11.	301		N	IV	2036.76	2036.10	70	18.94	824	
FE	III	2035.194	2034.537	4	.	188		CR	I	2037.00	2036.34	8	47.	341	
CA	I	2035.330	2034.676			101	A	CR	III	2037.070	2036.416	350	69.	893	
FE	III	2035.352	2034.695	40	.	188		N	IV	2037.08	2036.42	5	18.94	824	
AR	II	2035.4170	2034.7628	20	.	867		FE	II	2037.089	2036.435	200	137.	488	H
CR	III	2035.476	2034.822	300		893		CO	II	2037.238	2036.583	30	3.	825	
MN	III	2035.535	2034.881	50		301		MN	III	2037.317	2036.662	30	17.	301	
CR	II	2035.54	2034.88	15	29.	340		CA	I	2037.417	2036.762			101	A
CL	III	2035.54	2034.89	300		43		ZN	II	2037.479	2036.824	4		154	
NI	I	2035.55	2034.90	25	23.	488		FE	III	2037.502	2036.845	10	60.	188	
N	III	2035.67	2035.02	25		246	N	CU	II	2037.5737	2036.9190	40		612	
CO	I	2035.71	2035.05	7		603		CR	II	2037.64	2036.98	3	153.	340	
V	II	2035.72	2035.06	60		478		CR	III	2037.667	2037.014	10		893	
NI	I	2035.72	2035.07	100	43.	488		CU	II	2037.7819	2037.1272	250	16.	612	
SC	IV	2035.749	2035.095	40		720		FE	III	2037.804	2037.145	10		188	
FE	III	2035.760	2035.103	10		188		CR	III	2037.813	2037.160	60	69.	893	
MN	II	2035.785	2035.133	15		328		CR	II	2037.92	2037.26	4	222.	340	
CA	I	2035.939	2035.285			101	A	CR	III	2037.94	2037.29	6		490	
FE	II	2035.956	2035.302	1		645		V	III	2037.94	2037.29	55		325	
V	I	2035.96	2035.30	80	50.	489		FE	III	2037.950	2037.292	40		188	
KR	II	2035.996	2035.342	4		509		MN	II	2037.96	2037.31	200		328	
CO	I	2036.01	2035.35	5		603		MN	III	2037.968	2037.315	150	11.	301	
NI	II	2036.040	2035.386	2		835		V	II	2038.16	2037.50	25		478	
CR	III	2036.049	2035.492	120		893		FE	III	2038.236	2037.578	4		188	
MN	III	2036.155	2035.505	10		301		NI	II	2038.264	2037.611	2		835	
N	IV	2036.22	2035.57	110	18.94	824		CR	III	2038.27	2037.62	0		490	
CR	III	2036.26	2035.61	10		490		MN	II	2038.300	2037.643	200		328	
N	III	2036.27	2035.62	10		246	N	CA	I	2038.320	2037.667			101	A
AR	II	2036.282	2035.629	5		506		ZN	III	2038.326	2037.673	20		162	
V	II	2036.44	2035.78	15		478		CR	I	2038.38	2037.72	1	45.	341	
ZN	II	2036.495	2035.841	10		154		NA	III	2038.431	2037.778	240		516	
CU	II	2036.5089	2035.8545	275	15.	612		V	II	2038.49	2037.93	50		478	
F	III	2036.512	2035.858	12		537		FE	II	2038.506	2037.853	0		292	
FE	II	2036.526	2035.872	10		645		CO	I	2038.58	2037.92	2		603	
NA	III	2036.552	2035.898	330		516		FE	III	2038.750	2038.092	25		168	
FE	III	2036.596	2035.939	10		188		CL	II	2038.853	2038.198	5		613	
ZN	III	2036.605	2035.951	4		162		CR	I	2038.87	2038.21	7		341	
CA	I	2036.630	2035.976			101	A	ZN	III	2038.983	2038.330	3		162	
CR	III	2036.66	2036.01	1		490		V	I	2039.11	2038.45	0		489	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	III	2039.13	2038.48	0		490		MN	II	2040.62	2039.97	200		328	
MN	III	2039.139	2038.486	100		301		CO	III	2040.88	2040.23	10		673	
CU	III	2039.232	2038.577	50		724		KR	II	2040.981	2040.327	25		509	
FE	III	2039.279	2038.621	4		188		FE	III	2041.065	2040.407	25	71.	188	
CR	II	2039.30	2038.64	2	222.	340		CR	II	2041.08	2040.42	4	28.	340	
CO	II	2039.33	2038.68	9	19.	825		CR	III	2041.09	2040.44	2		490	
CR	III	2039.35	2038.70	3		490		FE	III	2041.196	2040.538	40		188	
CA	I	2039.360	2038.707			101	A	MN	III	2041.249	2040.595	10		301	
FE	III	2039.400	2038.742	10		188		CR	II	2041.34	2040.68	20	28.	340	
NI	III	2039.48	2038.82	10.		661		FE	II	2041.345	2040.690	10	93.	896	H
V	I	2039.51	2038.85	90	50.	489		FE	III	2041.418	2040.760	10		188	
CO	II	2039.519	2038.864			825		ZN	IV	2041.524	2040.864	10		154	
CO	I	2039.52	2038.86	0		603		ZN	I	2041.58	2040.92	20.		1014	U
CR	III	2039.53	2038.88	1		490		V	I	2041.66	2041.00	60	51.	489	
FE	III	2039.566	2038.908	10	60.	188		CR	II	2041.68	2041.02	8	28.	340	
MN	III	2039.608	2038.955	100	11.	301		CU	IV	2041.76	2041.10	12		713	
CR	I	2039.64	2038.98	1		341		CO	I	2041.77	2041.11	20		603	
CL	II	2039.6712	2039.0161	30		613		NI	I	2041.81	2041.16	10	46.	488	
CR	III	2039.73	2039.08	2		490		FE	I	2041.858	2041.204	25		605	N
CO	III	2039.82	2039.17	50		673		V	I	2041.90	2041.24	00		489	
CR	III	2039.83	2039.18	1		490		CA	I	2041.986	2041.332			101	A
ZN	III	2039.932	2039.279	25		162		TI	II	2042.14	2041.49	30	11.	488	
V	II	2039.95	2039.29	60	79.	478		CA	III	2042.193	2042.538	350		85	
CR	I	2039.96	2039.30	35	47.	341		CR	II	2042.23	2041.57	6	28.	340	
ZN	II	2039.962	2039.309	60		457		MN	II	2042.293	2041.630	40		328	
V	I	2040.05	2039.39	00		489		NA	III	2042.317	2041.663	360		516	
CR	III	2040.086	2039.432	25		893		GE	I	2042.3676	2041.7121	80	3.	7	
AR	II	2040.145	2039.490	30		506		CR	III	2042.376	2041.722	90	69.	393	
FE	II	2040.164	2039.510	20		292		V	I	2042.40	2041.74	10		489	
FE	III	2040.165	2039.507	90	134.	188		CO	I	2042.42	2041.76	3		603	
MG	III	2040.21	2039.55	360	6.	2		CR	II	2042.46	2041.80	7	28.	340	
ZN	III	2040.239	2039.581	50		162		MN	II	2042.79	2042.14	10		328	
CR	III	2040.318	2039.664	350	69.	893		NI	I	2042.83	2042.17	00		602	
V	I	2040.47	2039.81	5		489		FE	III	2042.895	2042.236	10		188	
SE	I	2040.47	2039.82	650	2.	588		CR	III	2042.912	2042.258	90		893	
CO	III	2040.50	2039.84	5		673		FE	IX	2043.01	2042.36	54		940	FH
CR	II	2040.56	2039.90	10	2.	340		AR	II	2043.0170	2042.3613	30		867	
CA	I	2040.570	2039.916			101	A	NE	VI	2043.04	2042.38	90		71	
CO	I	2040.61	2039.95	25	92.	603		NE	II	2043.076	2042.420	20		563	
MN	III	2040.61	2039.96	200		301		V	IV	2043.110	2042.454	20		829	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	II	2043.16	2042.50	10		328		AS	II	2045.341	2044.684	2		425	
ZN	III	2043.181	2042.527	10		162		SI	I	2045.38	2044.72	0		608	
CR	III	2043.27	2042.62	8		490		N	II	2045.416	2044.761		27.	521	P
CO	I	2043.38	2042.72	8		603		CR	II	2045.42	2044.76	1	135.	340	
CR	I	2043.38	2042.72	8	45.	341		CR	III	2045.47	2044.81	1		490	
MN	III	2043.404	2042.749	2		301		NA	III	2045.479	2044.824	300		516	
CR	II	2043.44	2042.78	5	135.	340		ZN	I	2045.58	2044.92	2		1014	U
CR	III	2043.48	2042.83	2		490		FE	III	2045.629	2044.970	40	60.	188	
MN	III	2043.64	2042.99	1		301		CA	I	2045.656	2045.001			101	A
CO	I	2043.66	2043.00	8		603		MN	III	2045.699	2045.044	100		301	
CA	I	2043.660	2043.005			101	A	CR	II	2045.96	2045.30	12	27.	340	
CO	III	2043.70	2043.05	2		673		NI	III	2046.09	2045.43	20		661	
CR	I	2043.72	2043.06	10	47.	341		NA	III	2046.05J	2045.444	300		516	
NI	III	2043.75	2043.09	2		661		MN	III	2046.128	2045.515	1		301	
MN	II	2043.78	2043.12	40		328		KR	II	2046.164	2045.509	1		509	
V	I	2043.79	2043.13	20		489		CR	III	2046.22	2045.56	1		490	
CR	III	2043.87	2043.22	5		490		CU	I	2046.29	2045.62			672	
TI	II	2043.91	2043.26		11.	488		O	III	2046.32	2045.67	5		72	
NA	III	2043.946	2043.291	360		516		CA	III	2046.459	2045.803	300		85	
FE	II	2043.96	2043.31	0		645		FE	III	2046.489	2045.830	60		188	
CU	III	2043.982	2043.326	100		724		TI	V	2046.514	2045.858	40		727	
CO	I	2044.03	2043.37	8	91.	603		CR	III	2046.57	2045.91	4		490	
MN	II	2044.09	2043.43	1		328		FE	III	2046.704	2046.043	4		188	
FE	III	2044.137	2043.478	25		188		ZN	III	2046.714	2046.058	00		162	
CO	I	2044.36	2043.70	8		603		V	II	2046.78	2046.12	0		478	
ZN	II	2044.367	2043.712	5		154		AR	II	2046.811	2046.155	5		506	
GE	I	2044.4254	2043.7695	80	4.	7		CO	III	2046.82	2046.16	10		673	
FE	II	2044.451	2043.796	50		645		MN	IV	2046.861	2046.202	0		799	
MN	II	2044.455	2043.800	15		328		CR	III	2047.03	2046.37	4		490	
CU	II	2044.4581	2043.8022	350	15.	612		AR	II	2047.1494	2046.4930	40		867	
ZN	II	2044.587	2043.932	30		154		CA	III	2047.193	2046.537	250		85	
CR	II	2044.59	2043.93	3		340		MN	II	2047.25	2046.59	20		328	
FE	III	2044.693	2044.034	25	71.	188		FE	III	2047.443	2046.784	10		188	
CO	III	2044.88	2044.23	5		673		CA	III	2047.475	2046.819	250		85	
V	I	2044.92	2044.26	2		489		CR	II	2047.64	2046.98	8	28.	340	
V	II	2044.94	2044.28	5	188.	478		CR	III	2047.680	2047.024	1		893	
FE	III	2044.961	2044.302	40	71.	183		FE	III	2047.785	2047.126	10		188	
NI	I	2045.07	2044.41	00		602		CA	III	2047.850	2047.193	200		85	
FE	III	2045.200	2044.541	4		188		FE	I	2047.900	2047.241	2	116.	605	
MN	III	2045.230	2044.575	300	11.	301		CR	III	2047.922	2047.266	350	69.	893	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2047.98	2047.32	2	153.	340		AS	II	2050.381	2049.724	30		425	
NI	I	2048.01	2047.35	50	42.	488		SI	III	2050.570	2049.913	7	57.	768	
CO	III	2048.02	2047.36	30		673		SI	I	2050.60	2049.94	0		608	
CA	I	2048.066	2047.410			101	A	KR	II	2050.637	2049.980	40		509	
AS	I	2048.23	2047.57	50	22.	480		CR	II	2050.98	2050.32	10	135.	340	
CU	II	2048.3350	2047.6783	15	180.	612		AR	II	2050.9811	2050.3240	20		867	
FE	II	2048.375	2047.719	10		645		CR	III	2051.00	2050.34	5		490	
CO	III	2048.41	2047.75	3		673		CA	I	2051.010	2050.353			101	A
NI	I	2048.46	2047.80	00		602		NI	II	2051.012	2050.355	1		835	
NA	III	2048.63	2047.97	30		516		SE	I	2051.09	2050.43	60		600	
AR	II	2048.6568	2048.0001	20		867		MN	III	2051.326	2050.669	20		301	
KR	II	2048.661	2048.005	1		509		CO	II	2051.391	2050.734	4	4.	825	
MN	IV	2048.912	2048.255	120		799		FE	III	2051.399	2050.739	120	60.	188	
CA	III	2048.950	2048.293	250		85		AR	II	2051.4496	2050.7924	50		867	
NA	III	2048.970	2048.314	180		516		CU	IV	2051.48	2050.82	10		713	
NI	I	2048.99	2048.33	0		602		NI	I	2051.50	2050.84	25	45.	488	
ZN	III	2049.049	2048.393	10		162		FE	II	2051.685	2051.028	250	93.	488	H
CR	III	2049.08	2048.42	10		490		CR	III	2051.70	2051.04	3		490	
ZN	I	2049.08	2048.42	4		1014	U	V	II	2051.93	2051.27	5	203.	478	
CO	III	2049.09	2048.44	5		673		CR	III	2052.01	2051.35	2		490	
FE	II	2049.148	2048.492	50	121.	488	H	FE	II	2052.023	2051.368	0		645	
CO	I	2049.25	2048.59	5		603		MN	III	2052.102	2051.447	5		301	
AS	II	2049.374	2048.716	3		425		NA	III	2052.141	2051.486	330		516	
NA	III	2049.376	2048.720	210		516		CR	III	2052.16	2051.50	2		490	
V	II	2049.41	2048.75	15		478		C	II	2052.44	2051.79	10	35.	287	
MN	III	2049.59	2048.93	400		301		V	II	2052.45	2051.79	30	203.	478	
ZN	I	2049.62	2048.96	2		1014	U	P	III	2052.469	2051.812	10		936	
F	III	2049.624	2048.967	30		537		NA	III	2052.503	2051.847	150		516	
V	I	2049.65	2048.99	00		489		FE	III	2052.507	2051.847	10		188	
CO	II	2049.822	2049.165	10	4.	825		NI	I	2052.70	2052.04	60	17.	488	
P	III	2049.944	2049.287	25		936		CO	III	2052.77	2052.11	10		673	
CR	I	2049.97	2049.31	8	45.	341		C	II	2052.82	2052.16	10	35.	287	
CR	III	2049.99	2049.33	1		490		FE	III	2052.929	2052.269	25		188	
MN	III	2050.002	2049.345	50		301		V	II	2053.04	2052.38	10	157.	478	
FE	III	2050.044	2049.384	120	71.	188		NI	I	2053.11	2052.45	10	17.	488	
CL	II	2050.1979	2049.5409	70		613		SE	I	2053.14	2052.48	30		588	
CR	III	2050.24	2049.58	1		490		KR	II	2053.175	2052.519	10		509	
V	II	2050.33	2049.67	5	146.	478		ZN	III	2053.176	2052.520	10		162	
B	V	2050.34	2049.68			309		AS	II	2053.208	2052.550	50		425	
MN	III	2050.340	2049.683	500	11.	301		MN	III	2053.240	2052.584	50		301	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
O	III	2053.40	2052.74	160		72		SI	I	2055.486	2054.828	50	103.	608	
MN	III	2053.402	2052.746	100		301		SI	I	2055.494	2054.836	4	5	370	
CO	I	2053.48	2052.82	6	36.	603		V	II	2055.51	2054.85	70		478	
ZN	I	2053.5	2052.8	15		1014	U	MN	III	2055.627	2054.970	100		301	
CR	III	2053.586	2052.930	1		893		CU	II	2055.6375	2054.9795	300	15.	612	
ZN	III	2053.726	2053.070	5		162		FE	II	2055.641	2054.984	10		645	
CO	II	2053.75	2053.09	3		825		ZN	III	2055.693	2055.036	12		162	
CO	III	2053.77	2053.11	200	65.	673		CL	II	2055.6996	2055.0417	100		613	
CO	I	2053.93	2053.27	6		603		CR	III	2055.736	2055.079	120		693	
NI	II	2053.957	2053.300	5	15.	835		V	II	2055.81	2055.15	5	74.	478	
AS	III	2053.97	2053.31	2		404		NA	III	2055.841	2055.184	270		516	
CO	III	2053.98	2053.32	2		673		FE	II	2055.927	2055.270	200	109.	488	
CR	III	2054.01	2053.35	0		490		CO	I	2056.12	2055.46	4		603	
CO	I	2054.12	2053.46	5		603		MG	III	2056.15	2055.49	360	6.	2	
FE	III	2054.182	2053.521	25		188		NI	I	2056.16	2055.50	75	19.	488	
CR	III	2054.20	2053.54	4		490		V	II	2056.21	2055.55	8	74.	478	
FE	II	2054.383	2053.727	0		645		NI	II	2056.237	2055.579	1		835	
ZN	III	2054.431	2053.775	6		162		CR	II	2056.25	2055.59	200	1.	340	
NI	I	2054.57	2053.91	5	17.	488		F	II	2056.320	2055.662	1		538	
CR	III	2054.64	2053.98	1		490		MN	III	2056.359	2055.702	8		301	
CA	I	2054.661	2054.005			101	A	FE	III	2056.516	2055.855	90	105.	188	
V	II	2054.67	2054.01	0		478		BE	I	2056.560	2055.902	40		333	
CO	I	2054.73	2054.07	10	34.	603		NE	VI	2056.59	2055.93	90		71	
MN	III	2054.73	2054.07	1		301		BE	I	2056.670	2056.012	60		333	
NE	II	2054.796	2054.138	10		563		SC	IV	2056.715	2056.058	450		720	
KR	II	2054.899	2054.243	10		509		V	I	2056.77	2056.11	2		489	
CU	II	2054.9100	2054.2521	10		612		FE	III	2056.806	2056.145	120	71.	188	
ZN	III	2054.912	2054.256	00		162		SI	I	2056.817	2056.158	1		370	
V	II	2054.93	2054.27	0		478		CU	IV	2056.86	2056.21	11		713	
CR	III	2054.97	2054.31	4		490		CO	II	2056.87	2056.21	1		825	
NI	II	2054.971	2054.313	20	32.	835		CO	III	2056.87	2056.21	100	65.	673	
S		2055.	2054.			107	N	NI	III	2056.97	2056.31	2		661	
SE	I	2055.02	2054.36	40		600		CR	III	2057.13	2056.47	2		490	
CU	II	2055.0741	2054.4162	10		612		CA	III	2057.253	2056.595	250		85	
CR	II	2055.10	2054.44	4	27.	340		CL	II	2057.3990	2056.7403	122		613	
GE	I	2055.1187	2054.4609	50	4.	7		CL	II	2057.3990	2056.7408	122		613	
FE	III	2055.141	2054.480	40		185		MN	III	2057.462	2056.805	300		301	
CR	III	2055.15	2054.49	2		490		ZN	II	2057.471	2056.814	20		457	
TI	II	2055.20	2054.54	30	11.	488		V	II	2057.55	2056.89	15	157.	478	
CR	II	2055.41	2054.75	10	27.	340		F	III	2057.582	2056.924	50		537	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	III	2057.719	2057.058	90	78.	188		F	II	2059.384	2058.725	40		538	
F	III	2057.722	2057.064	12		537		NA	III	2059.39	2058.73	120		516	
V	II	2057.86	2057.20	15	74.	478		CO	II	2059.467	2058.806	40	2.	825	
GE	I	2057.8965	2057.2382	50	14.	7		BE	IV	2059.532	2058.874			309	
FE	II	2057.989	2057.332	120	82.	488	H	FE	II	2059.663	2059.005	0		645	
V	II	2058.02	2057.36	25	74.	478		SI	II	2059.673	2059.014	50	9.01	678	
NI	II	2058.035	2057.376	1	16.	835		CR	III	2059.77	2059.11	1		490	
CR	III	2058.12	2057.46	4		490		AR	II	2059.849	2059.190	10		506	
NI	II	2058.138	2057.480	0		835		MN	III	2059.887	2059.229	1		301	
MN	III	2058.163	2057.506	30		301		CR	III	2059.95	2059.29	1		490	
AR	II	2058.1714	2057.5129	50		867		F	III	2060.099	2059.440	50		537	
ZN	III	2058.198	2057.541	0		162		CR	III	2060.19	2059.53	4		490	
CR	III	2058.33	2057.67	1		490		CL	II	2060.2233	2059.5664	140		613	
NI	III	2058.44	2057.78	10		661		FE	III	2060.339	2059.677	120	78.	188	
NI	II	2058.497	2057.838	1		835		MN	III	2060.34	2059.68	1	*	301	
CR	III	2058.51	2057.85	1		490		CR	III	2060.39	2059.73	3		490	
FE	III	2058.582	2057.921	40		188		KR	II	2060.454	2059.796	1		509	
CR	II	2058.61	2057.95	1	248.	340		MN	II	2060.50	2059.83	1		328	
SI	II	2058.621	2057.965	2	9.01	678		CO	I	2060.56	2059.90	3		603	
MN	III	2058.724	2058.066	2		301		NI	I	2060.58	2059.92	60	40.	488	
AR	II	2058.7422	2058.0837	30		867		AR	II	2060.738	2060.079	10		503	
FE	I	2058.761	2058.100	1	115.	605		V	IV	2060.772	2060.113	0		829	
FE	II	2058.762	2058.104	0		292		NI	I	2060.86	2060.20	40	40.	488	
SI	I	2058.795	2058.136	15	52.	608		CR	III	2060.880	2060.222	4		893	
FE	III	2058.862	2058.201	25		188		ZN	III	2060.939	2060.281	8		162	
CR	III	2058.91	2058.25	4		490		NA	III	2061.019	2060.361	300		516	
ZN	III	2058.974	2058.316	0		162		CR	III	2061.222	2060.564	200		893	
V	II	2059.00	2058.34	40	74.	478		MN	III	2061.352	2060.694	30		301	
MN	III	2059.011	2058.353	1		301		KR	II	2061.407	2060.749	10		509	
ZN	III	2059.039	2058.381	12		162		NI	I	2061.42	2060.76	5	39.	488	
CO	I	2059.17	2058.51	3		603		NI	II	2061.479	2060.820	0		835	
F	II	2059.174	2058.515	25		538		AR	II	2061.516	2060.855	5		506	
CR	III	2059.190	2058.532	4		893		CR	III	2061.54	2060.88	2		490	
FE	III	2059.221	2058.560	150	100.	188		CL	II	2061.6414	2060.9822	30		613	
GE	I	2059.24	2058.59	30		7		CR	II	2061.69	2061.03	3	248.	340	
CA	I	2059.261	2058.603			101	A	CR	III	2061.73	2061.07	10		490	
CU	II	2059.29	2058.63	0		670		SI	I	2061.851	2061.192	40	103.	608	
SI	II	2059.305	2058.646	50	9.01	878		CO	I	2062.05	2061.39	6		603	
KR	II	2059.305	2058.647	90		509		MN	III	2062.068	2061.407	6		802	
F	III	2059.384	2058.706	1		537		CR	II	2062.20	2061.54	175	1.	340	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	III	2062.214	2061.552	250	48.	188	H	ZN	III	2064.599	2063.940	10		162	
V	II	2062.22	2061.56	15		478		KR	II	2064.624	2063.965	4		509	
AS	I	2062.27	2061.61	3		480		N	III	2064.666	2064.007	200	30.	521	
SI	I	2062.30	2061.64	1	101.	608		MN	II	2064.704	2064.043	15		328	
FE	III	2062.413	2061.751	200	78.	188		AR	II	2064.872	2064.212	50		506	
MN	III	2062.583	2061.924	10		301		NI	II	2064.885	2064.225	2		835	
V	II	2062.66	2062.00	10		478		ZN	II	2064.887	2064.228	200		457	
ZN	II	2062.662	2062.003	300	1.	457		NI	I	2065.05	2064.39	40	40.	488	
FE	III	2062.745	2062.083	25		188		N	III	2065.083	2064.423	250	30.	521	
FE	II	2062.747	2062.088	0		292		CA	I	2065.173	2064.513			101	A
GE	III	2062.80	2062.14	3		406		CR	III	2065.33	2064.67	2		490	
CA	III	2062.814	2062.154	200	16.	85		V	II	2065.44	2064.78	2		478	
CO	III	2062.83	2062.17	10		673		CO	I	2065.52	2064.86	4	86.	603	
CR	II	2062.91	2062.25	10	27.	340		MG	III	2065.56	2064.90	1000	6.	2	
NI	I	2063.03	2062.37	25	22.	488		ZN	III	2065.630	2064.970	1		162	
CU	II	2063.0786	2062.4193	25	80.	612		N	II	2065.650	2064.990		14.0	521	P
NE	III	2063.28	2062.62	40		1031	M	CR	III	2065.776	2065.116	90	38.	893	
V	I	2063.44	2062.78	3		489		NE	III	2065.84	2065.18	400		1031	M
SE	I	2063.45	2062.79	350	2.	568		GE	I	2065.8748	2065.2149	80	3.	7	
CO	I	2063.58	2062.92	6		603		CR	III	2065.90	2065.24	3		490	
FE	III	2063.645	2062.983	25		188		FE	III	2065.931	2065.268	25		188	
NA	III	2063.649	2062.990	150		516		NA	III	2065.942	2065.282	120		516	
V	II	2063.78	2063.12	20	157.	478		AS	I	2066.02	2065.36	50	21.	480	
MN	III	2063.800	2063.138	85		802		ZN	III	2066.050	2065.390	1		162	
MN	III	2063.816	2063.157	20		301		CR	II	2066.12	2065.46	150	1.	340	
CR	II	2063.87	2063.21	10	52.	340		SI	I	2066.176	2065.516	30	103.	608	
CU	IV	2063.96	2063.30	14		713		CO	II	2066.198	2065.538	35	3.	825	
MN	III	2064.043	2063.382	80		802		ZN	III	2066.334	2065.674	10		162	
NI	I	2064.08	2063.42	50	43.	488		V	II	2066.42	2065.76	40	115.	478	
CR	III	2064.11	2063.45	1		490		B	III	2066.436	2065.776	850		531	
N	III	2064.16	2063.50	250		188	N	CR	II	2066.55	2065.89	10	52.	340	
CA	III	2064.184	2063.524	150		85		MN	III	2066.554	2065.894	100		301	
V	IV	2064.222	2063.563	2		829		CR	III	2066.58	2065.92	5		490	
CR	III	2064.30	2063.64	1		490		FE	II	2066.663	2066.005	150	109.	488	
FE	II	2064.331	2063.672	250	92.	488	H	CO	I	2066.78	2066.12	0		603	
CR	II	2064.42	2063.76	4	52.	340		CO	II	2066.78	2066.12	0		825	
AR	II	2064.4248	2063.7652	20		867		CR	III	2066.84	2066.18	15	38.	490	
CO	II	2064.433	2063.773	35	3.	825		CO	I	2066.88	2066.22	12	33.	603	
CR	III	2064.46	2063.80	4		490		CU	II	2066.9207	2066.2606	20	81.	612	
MN	III	2064.479	2063.820	15		301		KR	II	2066.957	2066.299	4		509	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
B	I	2067.036	2066.377	250		274		FE	II	2068.576	2067.917	200	137.	488	H
MN	III	2067.040	2066.382	500		301		MN	IV	2068.706	2068.046	40		799	
SI	I	2067.073	2066.413	0	100.	608		CR	II	2068.88	2068.22	1		340	
NI	II	2067.077	2066.417	3	15.	835		FE	III	2068.906	2068.243	350	48.	198	H
CR	II	2067.10	2066.44	2	52.	340		N	III	2068.91	2068.25	90		168	N
CR	III	2067.11	2066.45	4		490		ZN	II	2068.964	2068.305	50		154	
NA	III	2067.261	2066.603	450		516		CU	I	2068.984	2068.321	5		672	
B	I	2067.312	2066.654	250		274		S		2069.	2068.			107	N
CR	II	2067.32	2066.66	2	52.	340		NI	I	2069.01	2068.35	00		602	
CR	III	2067.35	2066.69	20		490		SE	I	2069.01	2068.35	10		588	
CR	II	2067.41	2066.75	3	52.	340		CR	II	2069.04	2068.38	8	27.	340	
FE	II	2067.413	2066.755	0		645		V	II	2069.20	2068.54	15	173.	478	
V	II	2067.45	2066.83	8	212.	478		KR	II	2069.274	2068.615	60.		509	
F	III	2067.534	2066.874	12		537		CR	III	2069.28	2068.62	1		490	
NA	III	2067.565	2066.907	240		516		NI	I	2069.28	2068.62	20	39.	488	
B	I	2067.589	2066.930	100		274		CR	II	2069.29	2068.63	1		340	
CR	II	2067.62	2066.96	3	52.	340		GE	I	2069.3167	2068.6562	80	3.	7	
CR	III	2067.64	2066.98	5		490		N	III	2069.340	2068.681	120	30.	521	
ZN	III	2067.653	2066.995	15		162		CR	III	2069.45	2068.79	1		490	
B	I	2067.68	2067.02	10		1021		V	II	2069.46	2068.80	60	173.	478	
NI	II	2067.709	2067.049	5		835		V	I	2069.47	2068.81	5		484	
AS	I	2067.77	2067.11	20	22.	480		CU	IV	2069.52	2068.86	10		713	
MN	III	2067.84	2067.18	2		301		CO	I	2069.65	2068.99	10	29.	603	
B	I	2067.852	2067.193	300		274		CR	III	2069.668	2069.009	300		893	
NI	III	2067.87	2067.21	10		651		MN	III	2069.684	2069.025	1000	10.	301	
B	III	2067.893	2067.233	700		531		NI	I	2069.70	2069.04	50		488	N
F	III	2067.949	2067.289	30		537		NI	II	2069.791	2069.130	1		835	
FE	III	2067.965	2067.302	90	124.	188		S	VI	2070.	2069.			90	
CR	III	2067.98	2067.32	5		490		CR	III	2070.126	2069.467	1		893	
SI	I	2068.046	2067.386	3	99.	608		NI	I	2070.18	2069.52	40	43.	488	
MN	III	2068.062	2067.403	80		301		NI	II	2070.240	2069.579	6		835	
CO	I	2068.08	2067.42	6		603		CR	III	2070.27	2069.61	1		490	
CR	III	2068.22	2067.56	2		490		MN	III	2070.37	2069.71	8		301	
TI	IV	2068.224	2067.564	1000	2.	721		AS	I	2070.44	2069.78	30	19.	480	
CO	I	2068.24	2067.58	5		603		FE	III	2070.472	2069.808	10		188	
SI	I	2068.243	2067.583	0		608		MN	III	2070.486	2069.827	8		301	
CA	III	2068.287	2067.627	200		85		ZN	III	2070.553	2069.894	15		162	
GE	I	2068.29	2067.63	40		7		CO	I	2070.57	2069.91	12	36.	603	
MN	III	2068.42	2067.76	2		301		O	VI	2070.58	2069.92	90		71	
CR	III	2068.54	2067.88	1		490		CU	II	2070.5957	2069.9349	2		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	II	2070.601	2069.940	18		835		MN	IV	2073.029	2072.364	10		799	
FE	II	2070.611	2069.952	100	273.	488		V	II	2073.09	2072.43	30	173.	478	
CU	IV	2070.76	2070.10	11		713		CR	III	2073.13	2072.47	1		490	
ZN	I	2070.79	2070.13	50		1014	U	CR	II	2073.22	2072.56	2		340	
C	VI	2070.91	2070.25		78.	309		FE	II	2073.231	2072.571	10		645	
O	VI	2070.95	2070.29	160		71		CR	III	2073.29	2072.63	2		490	
FE	II	2070.989	2070.330	80	273.	488		NA	III	2073.334	2072.674	330		516	
FE	III	2071.203	2070.539	150	99.	188		MN	III	2073.360	2072.696	70		602	
N	III	2071.29	2070.63	60		177	N	SI	II	2073.362	2072.701	200	9.	673	
MN	III	2071.389	2070.729	10		301		SC	IV	2073.400	2072.740	220		720	
V	II	2071.45	2070.79	15	173.	478		V	I	2073.42	2072.75	10		489	
CR	III	2071.56	2070.90	10		490		N	III	2073.52	2072.86	4		177	N
FE	III	2071.640	2070.976	10		188		CR	II	2073.56	2072.90	5		340	
MN	I	2071.652	2070.988	5		148		MN	I	2073.581	2072.917	12		148	
CL	VI	2071.7	2071.0			111		CP	III	2073.60	2072.94	3		490	
N	III	2071.748	2071.088	90	29.0	521		FE	II	2073.807	2073.147	80	81.	488	H
CR	III	2071.84	2071.18	15		490		MN	III	2073.816	2073.156	5		301	
NI	II	2071.881	2071.220	30		835		FE	II	2073.847	2073.187	0		645	
ZN	III	2072.002	2071.342	30		162		CR	II	2073.87	2073.21	4		340	
NE	II	2072.080	2071.419	10		563		V	I	2073.89	2073.23	2		489	
MN	III	2072.16	2071.50	2		301		CO	III	2073.91	2073.25	3		673	
CO	II	2072.18	2071.52	2		825		CO	I	2073.94	2073.27	10	28.	603	
ZN	III	2072.262	2071.602	3		162		CR	III	2074.02	2073.36	15	38.	490	
N	IV	2072.45	2071.79	10		246	Q	MN	III	2074.034	2073.374	200		301	
FE	II	2072.481	2071.821	100	107.	488	H	AR	II	2074.0868	2073.4253	40		867	
KR	II	2072.500	2071.840	40		509		CO	III	2074.18	2073.52	3		673	
FE	III	2072.553	2071.889	10		188		MN	II	2074.246	2073.584	2		328	
CO	I	2072.61	2071.95	4		603		V	I	2074.25	2073.58	2		489	
ZN	III	2072.639	2071.979	8		162		AL	III	2074.301	2073.632	D		825	
GE	I	2072.65	2071.99	10		7		AL	III	2074.388	2073.686	D		826	
CO	III	2072.67	2072.01	5		673		V	I	2074.56	2073.89	1		439	
SI	II	2072.677	2072.016	200	9.	678		AR	II	2074.665	2074.003	10		506	
ZN	III	2072.801	2072.141	8		162		AL	II	2074.6685	2074.0079	200		379	
V	I	2072.82	2072.16	0		489		CR	III	2074.75	2074.09	0		490	
MN	III	2072.87	2072.21	3		301		NI	II	2074.799	2074.138	1	42.	835	
CR	III	2072.91	2072.25	1		490		O	II	2074.83	2074.17	4		168	
NI	I	2072.92	2072.26	15	21.	488		FE	II	2074.856	2074.195	80	91.	488	H
CA	I	2072.946	2072.286			101	A	CU	II	2074.88	2074.22	0		670	
V	I	2072.96	2072.30	6		489		FE	III	2074.904	2074.240	25		188	
F	III	2072.992	2072.331	30		537		CR	III	2074.91	2074.25	0		490	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MG	III	2074.96	2074.30	3		2		P	III	2077.991	2077.329	4		936	
NI	I	2075.27	2074.61	0		602		CO	III	2078.01	2077.35	1		673	
N	III	2075.40	2074.74	10		177	N	MN	III	2078.036	2077.374	900	10.	301	
SE	I	2075.41	2074.75	350	1.	583		CO	I	2078.10	2077.44	1		603	
CA	III	2075.503	2074.841	200		85		FE	I	2078.169	2077.507	20		605	N
V	II	2075.53	2074.87	25	173.	478		FE	II	2078.169	2077.507	120	136.	483	
MN	II	2075.63	2074.97	5		328		CR	III	2078.22	2077.56	0		495	
SI	III	2075.71	2075.04	7	80.	768		V	II	2078.25	2077.58	15	211.	478	
NI	I	2075.75	2075.09	00		602		V	I	2078.41	2077.75	00		484	
FE	II	2075.768	2075.107	20		645		FE	III	2078.420	2077.755	40	105.	188	
CO	III	2075.78	2075.12	0		673		CO	I	2078.43	2077.76	25		603	
V	II	2075.80	2075.13	15	173.	478		CR	III	2078.45	2077.79	1		490	
CR	III	2075.87	2075.21	2		490		V	II	2078.45	2077.79	40		478	
CR	III	2076.166	2075.505	250		893		CU	III	2078.475	2077.813	5		724	
CR	III	2076.338	2075.677	300		893		ZN	III	2078.554	2077.892	5		162	
FE	II	2076.344	2075.683	50	107.	488		NA	III	2078.636	2077.974	270		516	
NI	I	2076.73	2076.07	10	42.	488		NI	II	2078.678	2078.016	3		835	
AR	II	2076.8453	2076.1833	20		867		CO	I	2078.73	2078.06	2		603	
MN	II	2076.873	2076.210	170		328		MN	III	2078.786	2078.124	300		301	
FE	III	2076.981	2076.316	25		188		V	I	2078.79	2078.12	0		489	
ZN	II	2077.038	2076.377	20		154		ZN	III	2078.806	2078.144	5		162	
V	I	2077.08	2076.41	8		489		CR	III	2078.81	2078.15	0		490	
NE	II	2077.161	2076.499	5		563		FE	II	2078.925	2078.164	80	91.	488	H
V	II	2077.18	2076.52	0	173.	478		CR	III	2079.073	2078.411	250		893	
MN	II	2077.33	2076.66	3		328		CU	II	2079.3252	2078.6628	100	78.	612	
V	I	2077.45	2076.78	0		489		CA	III	2079.578	2078.916	400		85	
V	II	2077.53	2076.87	60		478		SC	IV	2079.587	2078.925	285		720	
FE	III	2077.581	2076.916	4		188		NE	III	2079.61	2078.95	300		1031	M
BE	III	2077.60	2076.94	60		426		ZN	III	2079.619	2078.957	12		162	
N	II	2077.606	2076.944	70	14.0	200		FE	III	2079.654	2078.989	500	48.	188	H
MN	II	2077.607	2076.946	15		328		CO	II	2079.66	2079.00	1		825	
CR	II	2077.63	2076.96	30	38.	340		ZN	IV	2079.690	2078.992	20		154	
V	I	2077.66	2077.00	5		489		ZN	III	2079.70	2079.04	12		162	
CR	III	2077.699	2077.037	120		893		ZN	I	2079.743	2079.081	120		1014	U
CU	III	2077.708	2077.046	75		724		NI	II	2079.837	2079.174	30		835	
B	III	2077.749	2077.087	250		531		CR	II	2079.94	2079.27	20		340	
FE	III	2077.754	2077.089	4		188		V	II	2079.96	2079.29	10		478	
CU	III	2077.803	2077.141	20		724		V	IV	2079.962	2079.300	30		823	
V	I	2077.83	2077.16	15	63.	489		AS	I	2079.97	2079.30	7		480	
NI	I	2077.88	2077.22	0		602		FE	III	2079.972	2079.307	25		188	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	2079.98	2079.32	12	34.	603		N	II	2081.783	2081.120		14.0	521	P
CR	III	2079.982	2079.320	120		893		MN	III	2081.807	2081.141	75		802	
S	VI	2080.	2079.			107		CO	III	2081.90	2081.24	2		673	
MN	III	2080.061	2079.399	15		301		FE	II	2081.947	2081.284	2		896	
CU	I	2080.192	2079.529	20	26.	672		CR	III	2081.96	2081.30	1		490	
CO	I	2080.22	2079.55			603		MN	II	2081.96	2081.30	20		328	
V	I	2080.23	2079.56	15		489		NI	II	2082.001	2081.338	2		835	
AR	II	2080.3158	2079.6531	40		867		V	I	2082.01	2081.35	2		489	
CR	II	2080.32	2079.65	2		340		AL	II	2082.1415	2081.4805	15	3.	379	
MN	II	2080.35	2079.69	5		328		ZN	II	2082.189	2081.528	4		154	
CO	III	2080.40	2079.74	10		673		MN	II	2082.210	2081.548	20		328	
AS	II	2080.455	2079.791	10		425		V	I	2082.37	2081.70	0		489	
N	III	2080.51	2079.86	90		246	N	MN	III	2082.370	2081.704	40		602	
CR	II	2080.53	2079.86	10	152.	340		CR	III	2082.47	2081.81	1		490	
V	I	2080.54	2079.87	1		489		CR	III	2082.679	2082.018	350		893	
ZN	II	2080.550	2079.887	50		154		SI	I	2082.6864	2082.0234	8	51.	608	
ZN	III	2080.550	2079.887	20		162		AR	II	2082.772	2082.109	30		506	
N	II	2080.631	2079.968	40	14.0	200		CO	I	2082.78	2082.11	12	31.	603	
CU	II	2080.7229	2080.0602	5		612		C	VI	2082.83	2082.16		89.	309	
KR	II	2080.885	2080.222	4		509		O	VI	2082.84	2082.18	40		71	
FE	II	2080.905	2080.242	5	92.	896	H	CR	III	2082.88	2082.22	1		490	
CR	III	2080.917	2080.254	10		893		MN	III	2082.89	2082.23	1		301	
N	IV	2081.00	2080.34	160	18.95	824		CO	III	2082.91	2082.25	0		673	
AR	II	2081.020	2080.357	50		506		LI	III	2082.917	2082.254			309	
BE	III	2081.04	2080.38	40		428		FE	III	2083.043	2082.377	25		188	
ZN	II	2081.078	2080.415	25		154		CR	III	2083.13	2082.47	1		490	
ZN	IV	2081.079	2080.415	25		154		V	I	2083.19	2082.52	30	48.	489	
V	I	2081.13	2080.46	2		489		ZN	IV	2083.200	2082.507	1		154	
KR	II	2081.215	2080.552	90		509		NI	II	2083.268	2082.605	4		835	
V	I	2081.36	2080.70	2		489		CO	II	2083.34	2082.68	25	18.	825	
CR	III	2081.45	2080.79	2		490		KR	II	2083.415	2082.754	1		509	
NI	II	2081.513	2080.850	20	16.	835		CA	I	2083.442	2082.781			101	A
V	I	2081.53	2080.86	2		489		FE	III	2083.454	2082.788	4		188	
CO	III	2081.67	2081.01	2		673		ZN	III	2083.455	2082.794	3		162	
MN	III	2081.691	2081.028	10		301		CL	II	2083.4813	2082.8181	100		613	
CO	I	2081.71	2081.04	10	35.	603		MN	III	2083.503	2082.836	15		802	
MN	III	2081.716	2081.053	70		802		V	I	2083.51	2082.84	12		489	
CL	II	2081.7226	2081.0596	60		613		NI	I	2083.53	2082.87	40	19.	488	
ZN	IV	2081.728	2081.061	15		154		NA	III	2083.570	2082.909	390		516	
SE	I	2081.74	2081.08	80		600		CU	II	2083.59	2082.92	2		670	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	III	2083.72	2083.06	1		490		NI	I	2086.03	2085.37	20	41.	488	
FE	II	2083.801	2083.139	0		645		KR	II	2086.065	2085.403	10		509	
MN	III	2084.092	2083.430	20		301		FE	I	2086.088	2085.424	50		896	M
CU	III	2084.115	2083.452	2		724		NE	II	2086.130	2085.466	150		563	
FE	II	2084.174	2083.512	0	273.	488		CR	III	2086.16	2085.50	1		490	
FE	III	2084.196	2083.530	90	124.	188		NE	III	2086.22	2085.56	100		1031	M
V	I	2084.31	2083.65	00		489		V	I	2086.23	2085.56	10	49.	499	
NI	II	2084.313	2083.649	1	14.	835		NI	I	2086.23	2085.57	5	65.	488	
C	VI	2084.42	2083.76			309		NI	XV	2086.27	2085.61			940	FH
NI	II	2084.433	2083.770	5	32.	835		NI	II	2086.318	2085.654	50		835	
CR	III	2084.47	2083.81	11		490		CO	I	2086.34	2085.67	15		603	
KR	II	2084.565	2083.903	40		509		CL	II	2086.4060	2085.7420	122		613	
CR	I	2084.75	2084.08	10		341		P	III	2086.411	2085.760	4		936	
CO	I	2084.76	2084.09	10		603		MN	IV	2086.480	2085.813	0		799	
FE	I	2084.7852	2084.1217	100	33.	896		CR	III	2086.496	2085.834	60		893	
V	I	2084.79	2084.12	10	49.	489		FE	III	2086.506	2085.839	60		188	
CR	III	2084.87	2084.21	3		490		MG	III	2086.56	2085.89	360		2	
CO	III	2084.89	2084.23	1		673		V	I	2086.58	2085.91	20	49.	489	
MN	III	2084.892	2084.230	800	10.	301		GE	I	2086.6847	2086.0208	60		7	
CU	II	2084.987	2084.323	4		612		V	IV	2086.737	2086.073	30		829	
FE	III	2085.015	2084.349	250	67.	188		FE	III	2086.795	2086.128	40	105.	188	
P	III	2085.027	2084.363	40		936		MN	II	2086.80	2086.14	10		328	
V	IV	2085.037	2084.433	20		829		FE	II	2086.939	2086.276	0		292	
CR	II	2085.10	2084.43	4		340		MN	III	2086.973	2086.310	3		301	
SI	I	2085.1305	2084.4669	10	50.	608		V	I	2087.00	2086.33	20	48.	489	
FE	III	2085.181	2084.515	25	67.	188		MN	II	2087.12	2086.45	2		328	
KR	II	2085.223	2084.561	60		509		CL	II	2087.1467	2086.4825	140		613	
MN	II	2085.42	2084.76	100		328		P	III	2087.166	2086.502	4		936	
ZN	II	2085.478	2084.816	30		154		NI	II	2087.183	2086.519	20		835	
ZN	III	2085.478	2084.816	15		162		V	I	2087.24	2086.57	15	49.	489	
NI	II	2085.539	2084.675	30	42.	835		MN	III	2087.287	2086.624	60		301	
CO	II	2085.58	2084.91	10		825		KR	II	2087.391	2086.728	150		509	
CR	III	2085.59	2084.93	2		490		SI	I	2087.409	2086.745	1	50.	608	
CO	III	2085.61	2084.95	2		673		AR	II	2087.4759	2086.8119	20		867	
FE	III	2085.636	2084.968	60	77.	168		MN	II	2087.51	2086.84	30		328	
CO	I	2085.71	2085.04	9	32.	603		AL	II	2087.5269	2086.8642	30	3.	379	
CR	III	2085.76	2085.10	2		490		ZN	I	2087.61	2086.95	200		1014	U
AS	I	2085.91	2085.25	30	21.	480		NE	III	2087.62	2086.96	200		1031	
CU	II	2085.9381	2085.2744	8	14.	612		FE	III	2087.799	2087.132	150	77.	188	
NI	II	2085.979	2085.315	25		835		ZN	I	2087.997	2087.333	60		1014	U

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CO	III	2088.06	2087.40	1		673		NI	I	2089.64	2088.98	20	40.	488	
NE	III	2088.10	2087.44	140		1031		NI	II	2089.665	2089.000	35		835	
AS	II	2088.127	2087.462	20		425		S	III	2089.7	2089.0	300		295	
V	I	2088.14	2087.47	8		489		ZN	III	2089.700	2089.037	5		162	
KR	II	2088.142	2087.479	4		509		NI	I	2089.75	2089.09	20	19.	488	
FE	I	2088.1750	2087.5109	4	34.	896		FE	III	2089.756	2089.089	90	77.	188	
FE	II	2088.206	2087.542	8	108.	896	H	CR	II	2089.79	2089.12	12	16.	340	
V	II	2088.21	2087.54	15		478		V	I	2089.80	2089.13	2		489	
CO	I	2088.22	2087.55	15		603		CR	III	2089.824	2089.161	1		693	
CR	III	2088.24	2087.58	1		490		NE	III	2089.86	2089.20	40		1031	M
SI	I	2088.280	2087.616	5	50.	608		AL	III	2089.864	2089.163	D		826	
MN	III	2088.281	2087.618	2		301		MN	II	2089.95	2089.29	10		328	
V	I	2088.29	2087.62	10	49.	489		S		2090.	2089.			107	N
NI	II	2088.336	2087.672	7		835		CO	I	2090.02	2089.35	15	87.	603	
AR	II	2088.382	2087.718	10		506		CO	III	2090.09	2089.43	0		673	
CU	III	2088.406	2087.742	15		724		NE	III	2090.09	2089.43	300		1031	
NI	I	2088.42	2087.75	00		602		B	I	2090.237	2089.573	500	2.	274	
MN	III	2088.570	2087.907	5		301		CO	I	2090.34	2089.67	10	25.	603	
FE	III	2088.574	2087.907	120	77.	188		AS	I	2090.41	2089.74	6	19.	480	
CU	II	2088.5834	2087.9192	10		612		CO	I	2090.50	2089.83	10	90.	603	
V	II	2088.59	2087.92	20	114.	478		CU	IV	2090.51	2089.85	11		713	
CU	II	2088.6339	2087.9697	40	94.	612		V	I	2090.61	2089.94	20		499	
V	I	2088.64	2087.97	1		489		CL	II	2090.6292	2089.9646	160		613	
GE	II	2088.690	2088.025	3		676		KR	II	2090.669	2090.005	10		509	
AS	II	2088.760	2088.096	190		425		MN	III	2090.718	2090.054	600	10.	301	
CR	III	2088.794	2088.131	150		893		FE	III	2090.721	2090.053	120	124.	188	
KR	II	2088.815	2088.152	250		509		ZN	III	2090.739	2090.075	1		162	
NI	II	2088.876	2088.212	1		835		NI	II	2090.768	2090.103	15	15.	835	H
CO	II	2089.22	2088.56	4		825		FE	III	2090.806	2090.139	350	67.	188	
V	I	2089.23	2088.56	40	49.	489		CO	II	2090.86	2090.19	16		825	
CO	III	2089.24	2088.58	15		673		FE	III	2090.908	2090.240	90	59.	188	
CL	II	2089.2476	2088.5834	185		613		MN	III	2090.921	2090.257	300	10.	301	
FE	III	2089.292	2088.625	60	67.	188		P	III	2090.927	2090.262	10		936	
P	IV	2089.369	2088.705	200		937		V	II	2091.00	2090.33	25	194.	478	
V	IV	2089.401	2088.737	50		829		FE	I	2091.0479	2090.3831	6	31.	896	
MN	III	2089.436	2088.773	10		301		NI	I	2091.08	2090.42	10	17.	438	
FE	II	2089.515	2088.852	10		645		CO	II	2091.14	2090.47	2		825	
B	I	2089.573	2088.910	500	2.	274		CO	III	2091.17	2090.51	10	64.	673	
MN	II	2089.58	2088.91	40		328		V	I	2091.21	2090.54	5		489	
NE	III	2089.58	2088.92	400		1031		V	I	2091.35	2090.68	30	48.	489	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	II	2091.37	2090.70	20	38.	340		CU	III	2093.073	2092.408	15		724	
P	III	2091.395	2090.730	25		936		NE	III	2093.10	2092.44	240		1031	
CR	III	2091.436	2090.772	90		893		V	I	2093.11	2092.44	60	48.	489	
FE	I	2091.5194	2090.8545	6	34.	896		MN	I	2093.185	2092.516	50		148	
V	I	2091.63	2090.96	10	49.	489		CR	III	2093.24	2092.58	1		490	
CR	III	2091.63	2090.97	4		490		MN	II	2093.25	2092.59	30		328	
CO	II	2091.713	2091.048	6	2.	825		AL	III	2093.364	2092.667	D		826	
CO	I	2091.72	2091.05	15	89.	603		ZN	III	2093.404	2092.739	2		162	
TI	V	2091.769	2091.105	60		727		AR	II	2093.429	2092.764	30		506	
C	II	2091.83	2091.17	10	28.	267		CR	III	2093.43	2092.77	3		490	
MN	III	2091.848	2091.184	5		301		MN	III	2093.440	2092.775	5		301	
CR	III	2091.87	2091.21	1		490		CO	II	2093.46	2092.80	5		825	
V	I	2091.96	2091.29	20	48.	489		NI	II	2093.505	2092.840	3		835	
FE	III	2091.980	2091.312	120	77.	189		FE	III	2093.613	2092.945	90	129.	188	
N	II	2091.981	2091.316	40	16.0	200		CR	III	2093.64	2092.98	1		490	
GA	II	2092.06	2091.34	1000	1.	652		AS	II	2093.675	2093.010	10		425	
CO	I	2092.07	2091.40	10	29.	603		KR	II	2093.786	2093.121	40		509	
CL	II	2092.1235	2091.4585	185		613		C	II	2093.79	2093.13	4	28.	267	
P	III	2092.143	2091.478	10		936		CR	II	2093.96	2093.29	8	16.	340	
FE	III	2092.156	2091.488	10		188		KR	II	2094.036	2093.371	150		509	
CR	III	2092.22	2091.56	1		490		CO	I	2094.07	2093.40	15	86.	603	
AR	II	2092.2884	2091.6234	50		867		MN	I	2094.076	2093.407	140		148	
C	II	2092.30	2091.63	10	28.	287		NI	II	2094.131	2093.466	15		835	
NI	I	2092.35	2091.69	0	39.	488		FE	III	2094.172	2093.504	40	77.	168	
CR	III	2092.41	2091.75	0		490		CO	II	2094.18	2093.51	1		825	
V	II	2092.48	2091.81	2		478		NI	II	2094.220	2093.555	20	15.	835	H
KR	II	2092.533	2091.869	40		509		FE	II	2094.286	2093.621	60		645	
NE	III	2092.56	2091.90	80		1031	M	CR	II	2094.29	2093.62	2	16.	340	
V	I	2092.58	2091.91	4		489		NE	III	2094.30	2093.64	60		1031	M
MG	III	2092.63	2091.96	640		2		CU	II	2094.3029	2093.6376	35	79.	612	
CO	I	2092.65	2091.98	12	88.	603		CR	III	2094.31	2093.65	4		490	
C	III	2092.664	2091.999	160	12.01	34		P	III	2094.316	2093.651	90		936	
CR	III	2092.68	2092.02	5		490		FE	I	2094.3502	2093.6849	40	33.	389	
ZN	III	2092.703	2092.039	15		162		V	I	2094.37	2093.70	1		489	
NI	II	2092.807	2092.142	3		835		FE	II	2094.377	2093.711	50	290.	895	
MN	I	2092.827	2092.159	220		148		CR	III	2094.534	2093.869	500		893	
CO	III	2092.88	2092.22	0		673		NI	II	2094.794	2094.128	15		835	
V	I	2092.97	2092.30	10	48.	489		MN	III	2094.814	2094.149	300		301	
CR	III	2093.00	2092.34	1		490		NE	III	2094.82	2094.15	40		1031	M
AR	II	2093.002	2092.337	30		506		V	I	2094.82	2094.15	8		489	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
N	II	2094.849	2094.183	40	16.0	200		FE	I	2096.120	2095.451	1	31.	605	
MG	III	2094.87	2094.21	7		2		N	II	2096.198	2095.532	160	16.0	200	
SI	I	2094.876	2094.211	10	96.	608		NI	I	2096.20	2095.53	15		488	N
CO	II	2094.907	2094.241	3		825		NE	III	2096.21	2095.54	400		1031	
GE	I	2094.9237	2094.2582	250	3.	7		FE	III	2096.261	2095.593	10		188	
AL	II	2094.9295	2094.2644	700		379		CL	II	2096.3205	2095.6546	40		613	
P	IV	2094.967	2094.301	4		937		FE	III	2096.356	2095.688	40		188	
NI	II	2095.013	2094.348	1		835		NI	I	2096.42	2095.75	20	18.	488	
NI	II	2095.053	2094.388	7		835		CO	I	2096.44	2095.77	15		603	
CR	III	2095.13	2094.46	1		490		V	I	2096.44	2095.77	25	49.	489	
FE	II	2095.306	2094.641	10	107.	488		MN	III	2096.476	2095.809	75		802	
V	I	2095.38	2094.71	40	49.	489		CR	I	2096.50	2095.83	8	2.	341	
AL	II	2095.4092	2094.7440	150		379		NI	II	2096.514	2095.852	1		835	
CL	II	2095.4160	2094.7505	30		613		CR	III	2096.60	2095.94	1		490	
MN	III	2095.450	2094.785	500	10.	301		V	II	2096.61	2095.94	25	105.	478	
AL	II	2095.4559	2094.7906	300		379		AR	II	2096.642	2095.976	10		506	
AS	II	2095.456	2094.790	60		425		NE	II	2096.772	2096.106	180		563	
CU	II	2095.4591	2094.7935	5		612		CU	II	2096.8559	2096.1900	4		612	
NA	III	2095.474	2094.809	120		516		N	II	2096.858	2096.192	70	16.0	200	
CO	I	2095.53	2094.86	15	86.	603		V	I	2096.86	2096.19	20	47.	489	
CR	III	2095.59	2094.92	3		490		KR	II	2096.893	2096.227	250		509	
FE	II	2095.650	2094.985	20	91.	488		NE	III	2096.90	2096.23	240		1031	M
CR	I	2095.67	2095.00	12	2.	341		NE	II	2096.914	2096.248	120		563	
KR	II	2095.699	2095.034	60		509		SC	III	2096.94	2096.27	2		855	
V	II	2095.72	2095.05	15	105.	478		NI	III	2096.96	2096.29	1		661	
CU	IV	2095.75	2095.09	10		713		NI	II	2096.972	2096.306	0		835	
MN	III	2095.758	2095.093	200	10.	301		V	I	2097.04	2096.37	20	47.	489	
AL	II	2095.7688	2095.1035	100		379		FE	III	2097.099	2096.430	90	59.	188	
V	I	2095.78	2095.11	2		489		CR	II	2097.11	2096.42	6	152.	340	
KR	II	2095.780	2095.115	4		509		V	I	2097.21	2096.54	00		489	
NI	I	2095.80	2095.13	20	65.	488		V	I	2097.39	2096.72	15	49.	489	
AL	II	2095.8065	2095.1411	200		379		CR	III	2097.392	2096.726	120	38.	893	
FE	III	2095.811	2095.143	25		168		AR	II	2097.474	2096.806	10		506	
V	I	2095.96	2095.29	2		489		N	II	2097.522	2096.856	110	16.0	200	
FE	III	2095.995	2095.327	25	105.	168		ZN	III	2097.560	2096.894	20		162	
CR	III	2096.02	2095.35	1		490		ZN	I	2097.596	2096.930	80		1014	U
V	II	2096.04	2095.37	15	105.	473		CO	III	2097.62	2096.95	3		673	
CR	I	2096.07	2095.40	10	2.	341		FE	II	2097.656	2096.990	0	91.	488	
AS	II	2096.081	2095.415	225		425		V	I	2097.67	2097.00	8		489	
P	IV	2096.112	2095.446	4		937		V	II	2097.70	2097.03	2		478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	II	2097.760	2097.094	140	31.	835	H	CR	III	2099.389	2098.725	60		893	
CO	II	2097.789	2097.123	4		825		CU	II	2099.4078	2098.7415	5		612	
S	III	2097.9	2097.2	300		285		FE	III	2099.485	2098.816	25		188	
TI	III	2097.965	2097.299	130		227		KR	II	2099.599	2098.934	10		509	
S		2098.	2097.			107	N.	FE	I	2099.6050	2098.9386	3	34.	896	
CR	III	2098.00	2097.34	3		490		CO	I	2099.611	2098.942	12	28.	603	
V	I	2098.03	2097.36	30	48.	489		KR	II	2099.678	2099.013	25		509	
AS	IV	2098.07	2097.40	100		564		CR	III	2099.69	2099.03	2		490	
NE	III	2098.09	2097.43	40		1031	M	AL	I	2099.727	2099.060			1006	
CA	I	2098.103	2097.439			296	A	AR	II	2099.784	2099.118	10		506	
MN	II	2098.130	2097.463	140		328		CR	III	2099.79	2099.13	2		490	
FE	III	2098.149	2097.480	570	67.	188		NI	II	2099.816	2099.150	0		835	
FE	II	2098.176	2097.512	250	120.	488	H	V	II	2099.83	2099.16	30	94.	478	
FE	II	2098.176	2097.512	250	80.	488		MN	II	2099.84	2099.17	5		328	
CO	I	2098.180	2097.511	20		603		FE	III	2099.900	2099.231	60	66.	188	
MN	I	2098.223	2097.554	30		148		NE	III	2100.00	2099.34	200		1031	M
AS	II	2098.236	2097.570	2		425		FE	III	2100.001	2099.332	90	129.	188	
CO	III	2098.30	2097.64	10		673		CO	I	2100.02	2099.35	10	32.	603	
FE	III	2098.361	2097.692	350	66.	188		P	III	2100.051	2099.384	4		936	
S	III	2098.4	2097.7	300		285		KR	II	2100.068	2099.403	4		509	
CR	III	2098.42	2097.76	1		490		FE	II	2100.110	2099.445	10		645	
MG	III	2098.60	2097.94	270		2		V	II	2100.14	2099.47	0		478	
MN	III	2098.601	2097.937	500	10.	301		FE	III	2100.200	2099.531	10		188	
NE	III	2098.66	2098.00	20		1031	M	V	I	2100.22	2099.55	3		489	
V	II	2098.67	2098.00	5	156.	478		NA	III	2100.229	2099.564	180		516	
TI	V	2098.708	2098.044	40		727		NE	III	2100.25	2099.59	80		1031	M
CR	III	2098.73	2098.07	1		490		NI	II	2100.260	2099.614	12		835	
FE	I	2098.750	2098.081	15	31.	605		NI	II	2100.335	2099.668	6		835	
AR	II	2098.789	2098.123	10		506		AL	II	2100.3790	2099.7142	80		379	
FE	I	2098.829	2098.163	2		896	M	FE	III	2100.387	2099.718	4		188	
MN	II	2098.966	2098.301	10		328		CR	III	2100.510	2099.845	150		893	
CU	II	2098.9737	2098.3075	15		612		TI	III	2100.528	2099.862	80		227	
CO	II	2099.01	2098.34	4		825		AR	II	2100.58	2099.91	0		506	
AR	II	2099.030	2098.364	5		506		NI	II	2100.591	2099.925	13		835	
NI	II	2099.034	2098.368	10		835		ZN	II	2100.604	2099.939	300	4.	457	
CU	II	2099.0647	2098.3984	115	95.	612		MN	III	2100.638	2099.973	500	10.	301	
CA	III	2099.163	2098.497	400		85		O	II	2100.68	2100.01	4		168	P
V	I	2099.17	2098.50	40	47.	489		GE	III	2100.72	2100.05	15		406	
V	II	2099.27	2098.60	0		478		FE	I	2100.814	2100.144	10	34.	605	
P	III	2099.277	2098.611	60		936		NI	II	2100.907	2100.240	3		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	II	2100.92	2100.25	8		328		FE	I	2103.0211	2102.3541	20	33.	896	
V	II	2100.92	2100.25	0		478		GE	III	2103.09	2102.42	15		406	
NI	II	2100.975	2100.308	60		835		MN	II	2103.17	2102.50	140		326	
CR	II	2101.01	2100.34	15	16.	340		CR	II	2103.22	2102.55	5	15.	340	
NA	III	2101.110	2100.445	90		516		AL	I	2103.225	2102.558			1006	
C	III	2101.12	2100.46	1	23.	34		V	I	2103.25	2102.58	15	42.	489	
CR	III	2101.149	2100.484	500		893		CR	III	2103.274	2102.700	10		893	
V	I	2101.18	2100.51	25	48.	489		CO	I	2103.29	2102.62	10		603	
CR	II	2101.28	2100.61	10	16.	340		CR	II	2103.39	2102.72	7		340	
CR	III	2101.30	2100.63	5		490		NA	III	2103.429	2102.763	360		516	
CO	I	2101.33	2100.66	6		603		FE	V	2103.45	2102.78			229	F
O	II	2101.36	2100.69	4		168		AS	II	2103.471	2102.804	50		425	
MN	IV	2101.37J	2100.709	0		799		AL	I	2103.473	2102.806			1006	
V	I	2101.44	2100.77	25	48.	489		NI	II	2103.516	2102.849	1		835	
FE	I	2101.4646	2100.7976	10	33.	896		FE	I	2103.5775	2102.9104	20	34.	389	
CR	III	2101.480	2100.815	200		893		CR	II	2103.64	2102.97	25	15.	340	
FE	II	2101.628	2100.963	50	250.	488		CR	III	2103.65	2102.98	5		490	
CR	II	2101.63	2100.96	2	16.	340		CL	II	2103.6715	2103.0042	85		613	
FE	III	2101.630	2100.961	150	129.	188		V	I	2103.71	2103.04	8		489	
MN	III	2101.768	2101.103	200	10.	301		FE	I	2103.7202	2103.0530	6	31.	896	
CO	II	2101.77	2101.10	3		825		CO	I	2103.77	2103.10	4		603	
V	II	2101.84	2101.17	50	94.	478		GE	III	2103.81	2103.19	2		406	
NI	II	2101.885	2101.218	3		835		TI	IV	2103.827	2103.160	800	2.	721	
TI	II	2101.95	2101.28	1		601		SI	I	2103.880	2103.213	30	95.0	603	
CR	III	2102.04	2101.37	1		490		CR	III	2103.887	2103.221	350	41.	893	
AR	II	2102.134	2101.467	10		506		CA	II	2103.902	2103.235	10	9.	186	
V	I	2102.18	2101.51	00		489		CR	III	2103.99	2103.32	20	41.	490	
V	III	2102.18	2101.51	2		325		CR	III	2104.012	2103.346	350	41.	893	
CR	II	2102.36	2101.69	4		340		AR	II	2104.0191	2103.3518	50		867	
FE	II	2102.363	2101.698	10		292		NI	II	2104.059	2103.392	20	31.	835	
CO	I	2102.37	2101.70	3		603		V	II	2104.20	2103.53	30	172.	478	
CR	III	2102.380	2101.715	60		893		TI	III	2104.27	2103.60	40		227	
MN	II	2102.52	2101.86	5		328		FE	III	2104.317	2103.647	60	66.	189	
V	II	2102.53	2101.86	20	156.	476		V	II	2104.37	2103.70	80	94.	478	
CR	III	2102.81	2102.14	5		490		ZN	III	2104.373	2103.707	50		162	
ZN	II	2102.844	2102.178	200	4.	457		CR	III	2104.39	2103.72	1		490	
V	III	2102.88	2102.22	3		325		FE	III	2104.469	2103.799	350	66.	189	H
V	I	2102.90	2102.23	15	47.	489		CO	I	2104.52	2103.85	5		603	
GE	I	2102.93	2102.27	40	3.	7		C	IV	2104.61	2103.94	25	11.20	35	
NE	III	2103.00	2102.33	40		1031	M	FE	I	2104.634	2103.964	1	31.	605	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
SC	III	2104.709	2104.043	4		855		GE	I	2106.4918	2105.8241	50	3.	7	
ZN	II	2104.737	2104.071	24		154		NI	I	2106.52	2105.85	5	43.	488	
V	I	2104.74	2104.07	3		489		CR	III	2106.53	2105.86	1		490	
MN	II	2104.85	2104.18	10		328		MN	II	2106.56	2105.89	20		328	
CR	III	2104.89	2104.22	3		490		AR	II	2106.603	2105.935	30		506	
C	IV	2104.91	2104.24	7	11.20	35		MN	III	2106.65	2105.98	10	10.	301	
TI	II	2105.04	2104.37	10		601		MN	I	2106.722	2106.052	100		148	
ZN	II	2105.058	2104.392	30		154		MN	III	2106.79	2106.12	5		328	
ZN	I	2105.092	2104.425	150		1014	U	CR	III	2106.89	2106.22	2		490	
P	III	2105.093	2104.425	40		936		AR	II	2106.915	2106.247	10		506	
GE	III	2105.12	2104.45	25		406		FE	I	2106.9278	2106.2600	2	31.	896	
CO	I	2105.17	2104.50	12		603		NA	IV	2106.995	2106.328	650		459	
V	I	2105.24	2104.57	15	47.	489		V	I	2107.00	2106.33	15	47.	489	
MN	II	2105.25	2104.57	30		328		CR	I	2107.02	2106.35	3		341	
MN	III	2105.26	2104.59	5		301		KR	II	2107.025	2106.358	10		509	
ZN	III	2105.337	2104.671	15		162		FE	III	2107.030	2106.360	25		188	
CR	III	2105.350	2104.684	4		893		CU	II	2107.0464	2106.3786	3		612	
CO	I	2105.401	2104.730	25		603		FE	I	2107.0626	2106.3946	10	33.	896	
NA	III	2105.43	2104.76	0		516		AR	II	2107.205	2106.537	10		506	
CU	II	2105.4644	2104.7969	325	15.	512		V	IV	2107.228	2106.560	2		829	
MN	III	2105.481	2104.815	3		301		MN	II	2107.436	2106.760	30		328	
V	I	2105.51	2104.84	20	49.	489		CO	I	2107.469	2106.798	25	90.	603	
TI	III	2105.524	2104.857	25		227		CR	III	2107.494	2106.827	250		893	
AR	II	2105.552	2104.885	30		506		NI	II	2107.605	2106.937	0		835	
CR	III	2105.567	2104.901	300	41.	693		MN	II	2107.64	2106.97	5		328	
MN	IV	2105.631	2104.962	20		799		BR	II	2107.702	2107.035	0		606	
NI	III	2105.67	2105.01	15		661		GE	III	2107.78	2107.11	1		406	
CO	I	2105.69	2105.02	60	M	603		CA	III	2107.804	2107.136	200		85	
FE	III	2105.690	2105.020	0	146.	189		CR	III	2107.850	2107.183	150	61.	893	
ZN	III	2105.698	2105.032	0		162		NI	I	2107.88	2107.21	0	62.	488	
TI	III	2105.760	2105.092	40		227		CR	II	2107.95	2107.28	2		340	
CU	I	2105.782	2105.112	280	23.	672		FE	III	2107.995	2107.324	250	66.	188	H
CO	II	2105.81	2105.14	1		825		V	II	2108.07	2107.40	10	125.	478	
CO	III	2105.84	2105.17	3	64.	673		AL	I	2108.194	2107.526			1006	
CO	II	2105.995	2105.327	3		825		FE	II	2108.222	2107.555	100	250.	488	
MN	III	2106.004	2105.332	60		802		CR	III	2108.391	2107.724	250	40.	893	
ZN	III	2106.081	2105.414	15		162		P	III	2108.417	2107.749	25		936	
CO	II	2106.146	2105.478	2		825		NI	II	2108.494	2107.826	1		835	
CR	III	2106.253	2105.586	300		893		FE	II	2108.529	2107.862	10		292	
V	IV	2106.376	2105.709	0		829		MN	III	2108.57	2107.90	15	10.	301	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	II	2108.59	2107.92	15	16.	340		ZN	III	2110.201	2109.533	20		162	
CO	II	2108.62	2107.95	10		825		SI	I	2110.245	2109.577	1		608	
NI	II	2108.622	2107.954	140	60.	835		CO	II	2110.25	2109.58	1		825	
CO	I	2108.72	2108.05	0		603		CR	III	2110.25	2109.58	2		490	
MN	II	2108.73	2108.06	100		320		MN	I	2110.257	2109.585	170		148	
AR	II	2108.7379	2108.0697	20		867		ZN	III	2110.278	2109.610	5		162	
CR	III	2108.80	2108.13	1		490		KR	II	2110.456	2109.788	60		509	
FE	I	2108.8047	2108.1365	12	28.	389		NI	I	2110.46	2109.79	10	17.	488	
FE	II	2108.806	2108.139	150	81.	488	H	AS	II	2110.460	2109.791	100		425	
CO	I	2108.83	2108.16	0	28.	603		CR	II	2110.52	2109.85	6		340	
FE	I	2108.859	2108.188	1	32.	605		FE	I	2110.529	2109.861	25		605	N
FE	III	2108.888	2108.217	10		188		CR	III	2110.53	2109.86	6		490	
FE	I	2108.9701	2108.3019	12	34.	389		KR	II	2110.549	2109.881	25		509	
ZN	III	2108.980	2108.312	10		162		CU	IV	2110.65	2109.98	13		713	
CR	III	2108.99	2108.32	1		490		CR	III	2110.73	2110.06	4		490	
MN	IV	2109.011	2108.339	0		799		FE	I	2110.9040	2110.2354	8	31.	896	
CU	III	2109.088	2108.420	30		724		FE	II	2110.908	2110.240	250	290.	488	
AL	I	2109.265	2108.596			1006		CU	II	2110.965	2110.296	5		612	
MN	III	2109.278	2108.610	15	10.	301		MN	III	2110.987	2110.319	10		301	
AS	IV	2109.33	2108.66	150		584		CR	III	2111.03	2110.36	4		490	
FE	III	2109.347	2108.676	60	105.	188		CR	II	2111.04	2110.37	5	16.	340	
AR	II	2109.553	2108.886	10		506		V	II	2111.15	2110.48	5		478	
FE	II	2109.610	2108.942	250	227.	488		V	I	2111.18	2110.51	1	47.	489	
FE	I	2109.6274	2108.9591	10	33.	896		MN	III	2111.188	2110.519	20		802	
V	I	2109.64	2108.97	8		489		CR	III	2111.33	2110.66	5		490	
CO	I	2109.651	2108.980	15		603		CU	I	2111.33	2110.66	2		672	
MN	III	2109.660	2108.989	50		802		CR	II	2111.35	2110.68	4	26.	340	
NI	II	2109.691	2109.023	18	60.	835		FE	II	2111.401	2110.732	2	108.	896	
AR	II	2109.7167	2109.0483	20		867		AR	II	2111.416	2110.747	20		506	H
FE	II	2109.765	2109.097	100	227.	488		CO	I	2111.56	2110.89	M		603	
FE	II	2109.765	2109.097	100	250.	488		AR	II	2111.5653	2110.8965	20		867	
CR	III	2109.77	2109.10	1		490		CR	II	2111.59	2110.92	5	26.	340	
CO	I	2109.877	2109.206	5		603		CR	II	2111.65	2110.98	10	26.	340	
ZN	III	2109.931	2109.263	10		162		MN	II	2111.692	2111.022	10		328	
NA	III	2109.94	2109.27	30		516		V	II	2111.71	2111.04	15		478	
V	II	2109.94	2109.27	8	156.	478		CO	I	2111.75	2111.08	5		603	
NI	III	2109.98	2109.31	1		661		ZN	III	2111.759	2111.091	1		162	
CL	II	2110.056	2109.388	37		613		CA	VII	2111.8	2111.1			726	F
MN	II	2110.13	2109.46	5		328		CO	III	2111.82	2111.15	1		673	
CR	III	2110.158	2109.490	350		893		CU	I	2111.87	2111.20	0		672	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2111.889	2111.220	0	31.	378		AS	I	2113.66	2112.99	100	20.	480	
CR	III	2111.92	2111.25	4		490		CR	III	2113.68	2113.01	3		490	
CR	II	2111.93	2111.26	4	26.	340		CR	II	2113.71	2113.04	8	15.	340	
SC	III	2111.937	2111.269	4		855		FE	I	2113.7561	2113.0869	20	81.	389	
FE	I	2111.942	2111.274	20		605	N	NA	IV	2113.768	2113.099	70		459	
CU	II	2111.9631	2111.2944	40		612		CA	II	2113.815	2113.146	4	9.	186	
V	I	2112.05	2111.38	5		489		KR	II	2113.850	2113.181	25		509	
ZN	III	2112.072	2111.403	15		162		SC	IV	2113.855	2113.186	220		720	
NI	II	2112.087	2111.418	2		835		CO	I	2113.87	2113.20	3		603	
CO	I	2112.088	2111.416	10	30.	603		CU	I	2113.93	2113.26	2		672	
CO	II	2112.111	2111.442	15	3.	825		MN	III	2113.946	2113.277	40		802	
CR	II	2112.24	2111.57	3		340		CR	III	2113.96	2113.29	3		490	
MN	II	2112.31	2111.64	1		328		NI	II	2113.969	2113.300	0		835	
SC	III	2112.351	2111.682	2		855		FE	III	2114.016	2113.344	60		188	
NI	I	2112.40	2111.73	25	17.	489		ZN	III	2114.074	2113.405	10		162	
MN	II	2112.46	2111.79	2		328		CO	II	2114.18	2113.51	15		825	
FE	III	2112.466	2111.795	40		188		V	I	2114.19	2113.52	0		469	
CR	III	2112.51	2111.84	1		490		CO	I	2114.208	2113.536	12	87.	603	
SC	IV	2112.630	2111.961	40		720		MN	III	2114.214	2113.545	4		802	
MN	II	2112.68	2112.01	3		328		CR	III	2114.216	2113.547	250		893	
CU	II	2112.7694	2112.1004	300	55.	612		CU	I	2114.24	2113.57	2		672	
FE	II	2112.815	2112.146	0		645		ZN	III	2114.243	2113.574	8		162	
CR	II	2112.83	2112.16	10	15.	340		NI	II	2114.248	2113.579	180	60.	835	
CR	III	2112.83	2112.16	5		490		AL	I	2114.262	2113.593			1006	
ZN	III	2112.934	2112.265	4		162		NI	II	2114.343	2113.674	4		835	
FE	III	2112.954	2112.282	10		188		MN	III	2114.39	2113.72	2		301	
CU	III	2112.983	2112.314	15		724		CU	III	2114.410	2113.741	10		724	
MN	III	2113.035	2112.362	9		802		CR	III	2114.483	2113.814	570	41.	893	
CO	I	2113.07	2112.40	12	83.	603		CU	II	2114.52	2113.85	1		670	
CR	III	2113.10	2112.43	1		490		FE	III	2114.563	2113.891	90		188	
NI	II	2113.119	2112.450	50		835		SE	II	2114.62	2113.95	50		468	
FE	III	2113.168	2112.496	40		188		MN	II	2114.634	2113.964	170		328	
CU	II	2113.1945	2112.5255	4		612		V	II	2114.70	2114.03	30	172.	478	
MN	II	2113.21	2112.54	0		328		FE	II	2114.774	2114.107	0		645	
NA	III	2113.319	2112.650	210		516		CO	II	2114.92	2114.25	2		825	
CO	II	2113.33	2112.66	2		825		V	II	2114.97	2114.30	15	172.	478	
CR	III	2113.41	2112.74	2		490		CR	III	2114.973	2114.306	300	40.	893	
CA	II	2113.426	2112.757	10	9.	186		FE	III	2115.011	2114.339	25		188	
MG	III	2113.44	2112.77	360		2		CO	II	2115.067	2114.398	2		825	
FE	I	2113.6379	2112.9688	25	33.	389		CO	I	2115.08	2114.41	4	83.	603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CA	III	2115.082	2114.413	570		85		MN	III	2117.020	2116.350	10		802	
NI	I	2115.10	2114.43	20	64.	488		CR	III	2117.07	2116.40	2		490	
AR	II	2115.201	2114.532	10		506		AL	I	2117.212	2116.542			1006	
NA	IV	2115.203	2114.536	450		459		FE	III	2117.260	2116.588	120	58.	188	
CR	III	2115.240	2114.573	300	61.	893		MN	III	2117.270	2116.602	6		301	
KR	II	2115.245	2114.577	10		509		AR	II	2117.357	2116.687	50		506	
FE	I	2115.2691	2114.5997	25	33.	339		CR	III	2117.36	2116.69	2		490	
SI	I	2115.300	2114.631	30	4.	608		AS	II	2117.399	2116.729	1		425	
C	II	2115.39	2114.72	1	45.	287	Q	NA	III	2117.420	2116.752	360		516	
V	I	2115.49	2114.82	0	47.	489		NI	II	2117.488	2116.818	1		835	
CR	III	2115.570	2114.902	400	41.	893		CO	I	2117.515	2116.842	10	24.	603	
AR	II	2115.760	2115.090	10		506		CR	III	2117.613	2116.945	120		893	
NA	IV	2115.80	2115.13	40		459		FE	II	2117.62J	2116.960	250	213.	488	
FE	I	2115.8388	2115.1693	20	33.	389		TI	I	2117.68	2117.01	60		488	N
NI	II	2115.846	2115.176	3		835		CO	II	2117.76	2117.09	1		825	
KR	II	2115.922	2115.254	4		509		MN	III	2117.874	2117.206	2		301	
MN	III	2115.972	2115.300	6		802		ZN	III	2117.908	2117.240	12		162	
KR	II	2115.996	2115.328	4		509		V	II	2117.966	2117.293	25	172.	478	
ZN	III	2116.002	2115.334	12		162		CU	II	2117.9798	2117.3098	325	94.	612	
CO	I	2116.011	2115.338	12	80.	603		SC	III	2117.993	2117.323	F		863	
CR	III	2116.06	2115.39	3		490		FE	II	2118.114	2117.446	0		645	
MN	II	2116.062	2115.391	10		328		V	I	2118.15	2117.48	20	42.	489	
FE	II	2116.090	2115.422	2		645		V	II	2118.155	2117.482	12	8.	478	
ZN	III	2116.144	2115.476	10		162		NI	II	2118.164	2117.494	1		835	
CO	I	2116.16	2115.49	2		603		CR	III	2118.218	2117.550	570	41.	893	
CR	III	2116.26	2115.59	3		490		N	III	2118.261	2117.593	90	29.0	521	
ZN	III	2116.31J	2115.645	0		162		CO	I	2118.35	2117.68	15	86.	603	
MN	II	2116.34	2115.67	2		328		MN	II	2118.57	2117.90	1		328	
FE	II	2116.343	2115.675	0		645		CR	III	2118.578	2117.909	300	40.	893	
MN	III	2116.514	2115.842	8		802		AR	II	2118.604	2117.934	10		506	
CR	III	2116.58	2115.91	4		490		CO	II	2118.615	2117.945	5	2.	825	
MN	II	2116.72	2116.05	10		328		ZN	III	2118.649	2117.980	0		162	
MN	III	2116.743	2116.070	18		802		FE	II	2118.864	2118.195	80	120.	488	H
CR	III	2116.79	2116.12	3		490		CR	III	2118.880	2118.211	250		893	
NA	IV	2116.828	2116.160	220		459		TI	XIV	2118.9	2118.2			913	F P
CR	II	2116.84	2116.17	1		340		KR	II	2118.908	2118.239	40		509	
AR	II	2116.881	2116.210	5		506		MN	III	2118.950	2118.281	20		301	
NI	II	2116.898	2116.228	0		835		CU	II	2119.044	2118.374	10	137.	612	
CO	I	2116.96	2116.29	8		603		FE	III	2119.088	2118.415	60	58.	188	
ZN	II	2116.986	2116.318	5		154		V	II	2119.10	2118.43	30	137.	478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2119.124	2118.454	30		328		FE	III	2120.912	2120.239	60	58.	188	
CO	I	2119.178	2118.505	6	80.	603		MN	II	2120.94	2120.27	15		328	
BE	III	2119.23	2118.56	25		217		ZN	III	2121.005	2120.336	1		162	
FE	III	2119.240	2118.567	90	58.	188		CR	III	2121.061	2120.392	250	40.	893	
CA	I	2119.342	2118.672	1		1018	A	N	III	2121.133	2120.464	40	29.0	521	
CR	III	2119.371	2118.702	200	61.	893		O	IV	2121.25	2120.58	4		86	
MN	II	2119.39	2118.72	1		328		NI	II	2121.252	2120.582	6		835	
ZN	III	2119.429	2118.760	3		162		MN	II	2121.34	2120.67	1		328	
KR	II	2119.484	2118.815	200		509		CR	III	2121.35	2120.68	1		490	
V	II	2119.52	2118.84	25		478		CO	I	2121.378	2120.705	10	28.	603	
SC	III	2119.524	2118.855	10		855		NA	III	2121.40	2120.73	120		516	
NI	II	2119.533	2118.863	2		635		FE	III	2121.440	2120.767	40	58.	188	
AR	II	2119.618	2118.948	10		506		AR	II	2121.521	2120.850	10		506	
SC	IV	2119.638	2118.969	650		720		KR	II	2121.536	2120.867	10		509	
ZN	III	2119.659	2118.990	0		162		NI	II	2121.586	2120.915	0		835	
FE	II	2119.719	2119.050	120	120.	488	H	ZN	III	2121.711	2121.041	5		162	
FE	I	2119.8066	2119.1362	5	28.	389		BR	II	2121.788	2121.119	1		606	
SC	III	2119.828	2119.159	2		855		ZN	III	2121.863	2121.193	5		162	
V	II	2119.83	2119.15	40		478		SI	I	2121.8651	2121.1945	10	4.	608	
MN	III	2119.84	2119.17	1		301		CO	III	2121.89	2121.22	5		673	
CO	I	2119.865	2119.192	5	85.	603		CR	II	2121.93	2121.26	30	79.	340	
CR	III	2119.881	2119.212	25		893		AR	II	2121.977	2121.306	20		506	
SC	III	2120.015	2119.345			863		CR	III	2122.03	2121.36	10		490	
MN	II	2120.08	2119.40	30		328		CO	I	2122.065	2121.391	3		603	
ZN	III	2120.091	2119.422	2		162		MN	III	2122.068	2121.402	100		301	
V	II	2120.235	2119.562	15		478		NI	I	2122.07	2121.40	40	38.	488	
CR	III	2120.306	2119.637	200		893		CR	II	2122.17	2121.50	1		340	
MN	II	2120.32	2119.65	100		328		N	III	2122.171	2121.501	90	29.0	521	
MN	III	2120.32	2119.65	100		301		AR	II	2122.213	2121.542	10		506	
FE	II	2120.328	2119.659	0		645		V	II	2122.214	2121.540	10	172.	478	
CU	III	2120.385	2119.715	5		724		AL	I	2122.247	2121.576			1006	
MN	II	2120.45	2119.78	60		328		CR	III	2122.382	2121.712	300		893	
CO	III	2120.49	2119.82	3		673		NI	II	2122.440	2121.769	1		835	
KR	II	2120.527	2119.858	10		509		TI	I	2122.57	2121.90	60		488	
CO	I	2120.577	2119.904	10	80.	603		MN	III	2122.601	2121.931	35		802	
AR	II	2120.6543	2119.9838	30		867		CO	I	2122.66	2121.99	6		603	
V	IV	2120.724	2120.052	40		829		NI	II	2122.666	2121.995	0		835	
ZN	III	2120.748	2120.079	0		162		FE	III	2122.695	2122.021	60		188	
SI	IV	2120.850	2120.179	90	18.	767		V	II	2122.78	2122.11	1	8.	478	
ZN	III	2120.903	2120.234	1		162		CR	III	2122.81	2122.14	1		490	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	IV	2122.81	2122.14	10		713		V	I	2124.82	2124.15	12	42.	489	
FE	I	2122.863	2122.188	1	26.	605		FE	III	2124.899	2124.225	40		188	
NI	I	2122.92	2122.25	5	41.	488		NE	III	2124.94	2124.27	140		1031	M
BE	III	2122.94	2122.27	4		428		CU	I	2125.02	2124.35	5		672	
FE	II	2123.126	2122.456	0		292		SC	IV	2125.064	2124.393	160		720	
NI	II	2123.145	2122.474	25		835		S	III	2125.1	2124.4	400		285	
CR	III	2123.151	2122.481	300	61.	893		ZN	III	2125.101	2124.430	3		162	
NI	II	2123.261	2122.590	2		835		FE	I	2125.165	2124.494	0	81.	378	
CO	I	2123.31	2122.64	10	77.	603		NA	III	2125.182	2124.511	300		516	
NI	II	2123.391	2122.720	0		835		CR	III	2125.388	2124.717	300		893	
ZN	II	2123.411	2122.741	75		154		GE	I	2125.4152	2124.7438	50	13.	7	
CR	III	2123.452	2122.782	200	40.	893		NI	I	2125.47	2124.80	15	63.	488	
MN	III	2123.547	2122.877	15		301		CO	I	2125.48	2124.80	0		603	
CU	II	2123.6511	2122.9800	350	54.	612		NA	IV	2125.546	2124.875	70		459	
SI	I	2123.665	2122.994	15	49.	608		FE	III	2125.650	2124.976	25		188	
CA	III	2123.700	2123.029	700		85		N	II	2125.674	2125.003		14.0	521	P
FE	I	2123.789	2123.118	0		378		CO	II	2125.69	2125.02	2		825	
CR	III	2123.797	2123.127	200	40.	893		NI	II	2125.702	2125.030	10		835	
S	III	2123.9	2123.2	300		285		KR	II	2125.714	2125.043	4		509	
MN	III	2123.923	2123.253	300		301		CU	II	2125.7778	2125.1063	100	136.	612	
NI	II	2123.969	2123.298	50		835		CO	I	2125.790	2125.116	10	84.	603	
V	II	2124.014	2123.340	60	8.	478		NI	II	2125.793	2125.122	40	14.	835	H
AL	I	2124.033	2123.362	3		198		FE	III	2125.844	2125.170	40		188	
TI	I	2124.17	2123.50	70		488	N	MN	III	2125.875	2125.204	200		301	
CR	III	2124.224	2123.554	400		893		CU	II	2125.9390	2125.2674	15		612	
ZN	III	2124.229	2123.559	1		162		AR	II	2125.944	2125.272	10		506	
FE	III	2124.264	2123.590	150	104.	188		CO	I	2125.996	2125.322	5	28.	603	
V	II	2124.29	2123.62	10	8.	478		B	II	2126.	2125.			392	
MN	III	2124.45	2123.78	1		301		S	V	2126.	2125.			90	
CO	II	2124.50	2123.83	3		825		FE	II	2126.098	2125.427	6		645	
GE	I	2124.50	2123.83	30		7		N	II	2126.115	2125.444		26.	521	P
NI	II	2124.507	2123.836	3		835		NI	XIII	2126.17	2125.50	34		940	FH
ZN	III	2124.663	2123.993	2		162		BE	I	2126.240	2125.568	3		333	
V	II	2124.68	2124.00	5	8.	478		NI	I	2126.29	2125.62	25	16.	488	
CO	III	2124.74	2124.07	5		673		CR	III	2126.307	2125.636	120	41.	893	
CR	III	2124.74	2124.07	1		490		BE	I	2126.347	2125.685	7		333	
FE	III	2124.749	2124.075	10		188		AR	II	2126.378	2125.706	10		506	
NI	I	2124.78	2124.10	0		602		KR	II	2126.441	2125.770	25		509	
SI	I	2124.7939	2124.1225	100	48.	608		V	I	2126.51	2125.84	20	42.	439	
CO	I	2124.80	2124.13	8		603		CO	II	2126.521	2125.849	2		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CL	II	2126.554	2125.882	81		613		NA	III	2128.514	2127.842	330		516	
NI	II	2126.586	2125.914	25	13.	835		FE	I	2128.535	2127.863	2		378	
CO	I	2126.623	2125.949	5	25.	603		CR	III	2128.60	2127.93	10		490	
ZN	III	2126.659	2125.988	2		162		FE	II	2128.639	2127.967	100	290.	488	
CU	II	2126.7163	2126.0445	350	14.	612		CR	III	2128.80	2128.13	10		490	
MN	III	2126.827	2126.156	200		301		V	II	2128.916	2128.241	7	8.	478	
CO	I	2126.874	2126.199	5	83.	603		CU	IV	2128.99	2128.31	11		713	
FE	I	2126.887	2126.212	1	27.	605		CR	III	2129.08	2128.41	2		490	
CR	III	2127.186	2126.515	90		893		NI	I	2129.08	2128.41	15	19.	488	
V	II	2127.259	2126.585	25		478		AL	IV	2129.12	2128.45	40		888	
NA	III	2127.30	2126.63	330		516		CL	II	2129.179	2128.507	11		613	
AR	II	2127.3362	2126.6643	40		867		GE	I	2129.24	2128.57	30		7	
CR	III	2127.343	2126.672	25	40.	893		CU	III	2129.249	2128.577	30		724	
V	I	2127.42	2126.74	5		489		CO	II	2129.25	2128.58	1		825	
CL	II	2127.443	2126.771	28		613		NI	II	2129.255	2128.583	70	15.	835	H
ZN	III	2127.474	2126.803	2		162		AR	II	2129.337	2128.665	10		506	
CA	III	2127.484	2126.812	250		85		CR	III	2129.36	2128.69	1		490	
NI	II	2127.510	2126.838	180		835		CA	II	2129.422	2128.750	1	3.	186	
TI	I	2127.56	2126.89	50		488	N	CO	II	2129.47	2128.80	1		825	
V	II	2127.607	2126.932	20	8.	478		NI	II	2129.734	2129.061	1		835	
CR	III	2127.653	2126.982	150		893		CL	II	2129.796	2129.124	9		613	
FE	II	2127.691	2127.020	10		645		CL	II	2129.796	2129.124	9		613	
AR	II	2127.7221	2127.0501	20		867		NI	II	2129.813	2129.141	3	31.	835	
CO	I	2127.822	2127.147	10	80.	603		MN	II	2129.83	2129.16	2		328	
V	I	2127.85	2127.17	5		489		CO	II	2129.847	2129.175	M		825	
MN	III	2127.85	2127.18	150		301		CA	III	2129.863	2129.191	400	15.	85	
BE	III	2127.87	2127.20	4		428		CR	III	2129.90	2129.23	5	41.	490	
CR	II	2127.93	2127.26	7	25.	340		FE	III	2129.913	2129.238	10		188	
AL	I	2127.974	2127.302			1006		CR	III	2129.945	2129.273	60	41.	893	
CL	II	2128.009	2127.337	7		613		CR	III	2130.09	2129.42	2		490	
V	II	2128.01	2127.34	5	8.	478		AR	II	2130.0963	2129.4239	40		867	
FE	I	2128.139	2127.467	1	28.	378		V	II	2130.152	2129.477	40		478	
SI	IV	2128.139	2127.467	160	18.	767		CO	I	2130.183	2129.508	5	30.	603	
CR	II	2128.20	2127.53	8	25.	340		ZN	III	2130.189	2129.517	3		162	
MN	III	2128.24	2127.57	15		301		NI	II	2130.195	2129.523	8		835	
FE	III	2128.309	2127.634	10		188		NE	III	2130.21	2129.54	120		1031	M
AR	II	2128.3205	2127.6485	30		867		TI	III	2130.25	2129.58	3		227	
NI	II	2128.357	2127.685	1		835		CR	III	2130.277	2129.605	300		893	
CR	III	2128.41	2127.74	2		490		CO	II	2130.28	2129.61	20		825	
NI	II	2128.449	2127.777	40	41.	835		AL	I	2130.335	2129.663	3		198	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	III	2130.358	2129.683	60	.	183		CO	II	2131.93	2131.26	3		825	
CO	II	2130.47	2129.80	20		825		NI	II	2131.938	2131.265	35	14.	835	H
AR	II	2130.4813	2129.8088	30	.	867		CR	III	2131.98	2131.31	5		490	
KR	II	2130.492	2129.820	40		509		S	V	2132.	2131.			90	
CR	II	2130.57	2129.89	50	24.	340		GE	I	2132.02	2131.35	20		7	
MN	II	2130.58	2129.91	1		328		GE	II	2132.03	2131.36	20		676	
V	IV	2130.606	2129.934	30		829		NI	II	2132.043	2131.370	1		835	
NI	I	2130.83	2129.96	50	37.	488		FE	II	2132.054	2131.383	0		645	
CU	II	2130.7583	2130.0858	40		612		MN	II	2132.16	2131.48	2		328	
TI	II	2130.82	2130.15	10		601		CA	II	2132.178	2131.505	10	3.	186	
NI	II	2130.845	2130.172	0		835		CR	III	2132.474	2131.803	150	41.	893	
N	II	2130.852	2130.179	110	25.	200		CO	I	2132.51	2131.84	0		603	
CR	II	2130.91	2130.22	50	79.	340		V	II	2132.52	2131.85	80	8.	478	
FE	II	2130.931	2130.259	150	80.	488	H	FE	III	2132.626	2131.951	25		188	
CO	I	2130.951	2130.276	8	27.	603		CR	III	2132.666	2131.995	300		893	
FE	I	2131.092	2130.417	1	83.	605		FE	I	2132.6899	2132.0167	10	25.	896	
V	II	2131.10	2130.42	5	180.	478		V	I	2132.71	2132.03	3		489	
AR	II	2131.102	2130.429	60	.	506		FE	III	2132.765	2132.089	4		188	
KR	II	2131.105	2130.432	120		509		MN	II	2132.81	2132.14	1		328	
FE	II	2131.201	2130.528	120	249.	645		TI	II	2132.87	2132.20	1		601	
MN	III	2131.270	2130.597	200		301		KR	II	2132.871	2132.200	4		509	
NI	II	2131.300	2130.628	3		835		CR	III	2132.885	2132.214	40	40.	893	
CU	I	2131.436	2130.762	50	21.	672		CO	II	2132.95	2132.28	2		825	
NI	I	2131.45	2130.78	15		488	N	CA	II	2132.977	2132.304	4	3.	186	
FE	III	2131.504	2130.829	25		188		S	IV	2133.	2132.			107	
AL	IV	2131.51	2130.84	200		385		NI	II	2133.026	2132.353	1		835	
AL	IV	2131.51	2130.84	200		385		AL	I	2133.061	2132.388			1006	
V	II	2131.52	2130.85	0		478		CR	II	2133.07	2132.38	8	24.	340	
MN	IV	2131.560	2130.885	0		799		FE	II	2133.175	2132.504	30		645	
CO	I	2131.59	2130.91	M		603		FE	II	2133.208	2132.537	20	272.	488	
AL	IV	2131.59	2130.92	200		889		CR	II	2133.30	2132.62	40	24.	340	
KR	II	2131.610	2130.937	4		509		O	IV	2133.31	2132.64	10		86	
FE	I	2131.637	2130.964	4		896	M	ZN	III	2133.363	2132.692	0		162	
AR	II	2131.646	2130.974	5		506		CR	II	2133.39	2132.71	35	24.	340	
NI	II	2131.719	2131.046	60	31.	835		CO	I	2133.443	2132.767	10	23.	603	
CO	I	2131.727	2131.052	3	29.	603		V	I	2133.58	2132.91	8		489	
MN	II	2131.73	2131.05	30		328		CR	II	2133.61	2132.93	40	24.	340	
CR	III	2131.77	2131.10	5		490		ZN	III	2133.698	2133.027	0		162	
NI	II	2131.772	2131.099	180		835		CR	II	2133.72	2133.03	30	24.	340	
CU	II	2131.9285	2131.2558	8		612		V	II	2133.72	2133.04	60		478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	II	2133.93	2133.26	30		825		NI	II	2135.433	2134.760	20		835	
FE	I	2133.987	2133.311	1	81.	605		TI	II	2135.51	2134.84	1		601	
TI	II	2134.03	2133.36	1		601		FE	III	2135.537	2134.861	200	98.	188	
FE	III	2134.034	2133.358	10		188		CO	III	2135.55	2134.88	2		673	
MN	II	2134.126	2133.452	100		328		CR	II	2135.56	2134.88	25	23.	340	
CO	II	2134.139	2133.466	4	2.	825		CO	I	2135.60	2134.92	6		603	
CR	II	2134.18	2133.49	100	23.	340		NI	I	2135.60	2134.93	100	37.	498	
NI	II	2134.190	2133.517	50		835		AR	II	2135.615	2134.941	10		506	
TI	II	2134.30	2133.63	0		601		CR	III	2135.76	2135.09	7		490	
ZN	IV	2134.426	2133.746	00		154		CR	II	2135.77	2135.09	15	23.	340	
AS	I	2134.48	2133.80	50	20.	480		NI	II	2135.801	2135.127	160		835	
CR	III	2134.486	2133.814	120		893		V	I	2135.86	2135.18	0		469	
CR	II	2134.50	2133.81	18	23.	340		ZN	III	2135.876	2135.204	8		162	
KR	II	2134.516	2133.844	40		509		MN	II	2135.89	2135.21	50		328	
CU	I	2134.54	2133.87	0		672		FE	II	2135.955	2135.283	6		645	
AS	III	2134.56	2133.89	2		404		NI	I	2136.01	2135.34	15	18.	488	
V	I	2134.58	2133.90	0		489		CR	II	2136.02	2135.34	50	23.	340	
CA	III	2134.626	2133.953	400		95		HE	II	2136.024	2135.350			309	
SI	II	2134.66	2133.99	10	33.	678		CR	II	2136.10	2135.42	50	23.	340	
FE	II	2134.662	2133.990	80	213.	488		P	I	2136.14	2135.47	100	4.	496	
MG	III	2134.73	2134.06	410		2		AR	II	2136.189	2135.515	10		506	
CO	I	2134.78	2134.10	8		603		FE	III	2136.199	2135.523	40		188	
V	II	2134.80	2134.12	200	7.	478		V	I	2136.22	2135.54	1		489	
CO	III	2134.82	2134.15	10		673		CO	I	2136.27	2135.59	3	28.	603	
CR	III	2134.865	2134.193	200	61.	893		TI	II	2136.40	2135.73	10		601	
CR	II	2134.88	2134.20	40	23.	340		CO	I	2136.474	2135.798	4	29.	603	
NI	II	2134.963	2134.289	50	31.	835		ZN	III	2136.506	2135.834	25		162	
CU	II	2135.0144	2134.3410	425	52.	612		MN	II	2136.51	2135.83	2		328	
NI	II	2135.048	2134.375	10		835		FE	I	2136.622	2135.948	2		896	
NI	II	2135.114	2134.441	15		835		CU	II	2136.6547	2135.9810	900	14.	612	M
CO	II	2135.19	2134.52	20		825		SE	I	2136.73	2136.06	10		588	
CR	II	2135.21	2134.52	100	23.	340		CO	III	2136.81	2136.14	3		673	
MN	II	2135.24	2134.57	20		328		P	I	2136.86	2136.18	200	4.	496	
FE	II	2135.249	2134.577	20		645		MN	II	2136.90	2136.23	1		328	
FE	II	2135.264	2134.592	20	226.	488		V	I	2136.95	2136.27	1		489	
FE	II	2135.264	2134.592	20	212.	488		V	IV	2137.003	2136.330	10		829	
CR	II	2135.30	2134.62	75	23.	340		MN	II	2137.02	2136.35	20		328	
KR	II	2135.368	2134.694	25		509		FE	III	2137.036	2136.360	60	76.	188	
MN	III	2135.394	2134.712	5		301		BR	II	2137.068	2136.396	0		606	
AL	I	2135.407	2134.733	7		198		SI	II	2137.076	2136.402	30	32.	678	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CO	II	2137.145	2136.471	2	2.	825		AR	III	2139.27	2138.59	100		79	
FE	II	2137.177	2136.505	200	249.	645		V	I	2139.30	2138.62	10	63.	489	
SI	II	2137.236	2136.560	50	32.	678		SE	I	2139.32	2138.65	10		588	
CU	IV	2137.28	2136.61	11		713		GE	III	2139.33	2138.65	1		406	
NI	II	2137.296	2136.622	10		835		MN	III	2139.51	2138.84	1		301	
CR	III	2137.30	2136.63	1		490		FE	II	2139.542	2138.869	6		645	
GE	I	2137.39	2136.71	30		7		AR	II	2139.556	2138.882	30		506	
MN	III	2137.396	2136.722	4		802		TI	III	2139.57	2138.90	3		227	
CA	III	2137.514	2136.840	25		85		MN	II	2139.63	2138.96	1		328	
BE	III	2137.60	2136.93	5		217		CO	I	2139.648	2138.971	15	28.	603	
CR	III	2137.622	2136.949	400		893		N	II	2139.681	2139.007	70	0.0	200	
FE	III	2137.685	2137.009	60	59.	188		NI	II	2139.759	2139.085	0		835	
ZN	III	2137.799	2137.126	3		162		CR	III	2139.814	2139.140	400	48.	893	
MN	II	2137.85	2137.17	15		328		ZN	III	2139.827	2139.154	20		162	
CO	III	2137.98	2137.31	5		673		TI	II	2139.92	2139.25	1		601	
V	II	2137.99	2137.31	100	7.	478		MN	III	2139.921	2139.244	25		802	
FE	III	2138.041	2137.365	150	58.	188		CR	II	2140.01	2139.33	7	14.	340	
CO	I	2138.06	2137.38	0		603		TI	I	2140.08	2139.41	50		488	N
C	II	2138.091	2137.417	25	17.	287		V	I	2140.12	2139.45	0		489	
ZN	III	2138.099	2137.426	4		162		FE	III	2140.138	2139.461	10		188	
CR	III	2138.16	2137.49	2		490		N	II	2140.162	2139.489		15.0	521	P
CR	II	2138.18	2137.50	7	284.	340		MN	II	2140.20	2139.52	1		328	
V	I	2138.39	2137.71	2		489		CA	III	2140.205	2139.531	120		85	
CR	III	2138.40	2137.73	3		490		CR	II	2140.23	2139.54	10	14.	340	
FE	II	2138.408	2137.735	150	6.	488	H	NI	II	2140.343	2139.668	1		835	
V	IV	2138.415	2137.741	20		829		FE	II	2140.349	2139.676	250	6.	488	H
CO	I	2138.457	2137.780	15	28.	603		FE	I	2140.3727	2139.6980	15	24.	896	
B	III	2138.502	2137.830	110		531		NI	I	2140.411	2139.710	20		835	
C	II	2138.571	2137.897	60	17.	287		FE	I	2140.413	2139.738	3		896	M
CR	II	2138.64	2137.96	15	134.	340		V	II	2140.475	2139.798	100	7.	478	
CR	III	2138.671	2137.998	150	41.	893		C	III	2140.53	2139.86	5	40.	34	
FE	II	2138.776	2138.103	200	135.	488		CR	III	2140.57	2139.90	3		490	
NI	II	2138.817	2138.143	25		835		ZN	III	2140.577	2139.904	12		162	
V	II	2138.85	2138.17	60	7.	478		FE	I	2140.6094	2139.9349	2	29.	896	
CU	IV	2138.88	2138.21	10		713		V	II	2140.741	2140.064	150	7.	478	
CR	III	2139.08	2138.41	3		490		NI	I	2140.76	2140.09	00		602	
CU	I	2139.209	2138.533	220	24.	672		FE	II	2140.855	2140.181	4		645	
ZN	I	2139.248	2138.575	200	1.	830		KR	II	2140.864	2140.190	60		509	
NI	II	2139.256	2138.582	50	13.	835		V	I	2141.01	2140.33	1		489	
FE	I	2139.2668	2138.5924	4	24.	896	H	MN	II	2141.025	2140.350	20		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CA	III	2141.034	2140.359	400		85		CO	I	2143.02	2142.34	2		603	
CU	I	2141.05	2140.37	1	25.	672		AL	I	2143.077	2142.402			1006	
FE	III	2141.104	2140.427	40		188		V	II	2143.08	2142.40	3	124.	478	
CR	II	2141.18	2140.50	20	14.	340		NI	II	2143.128	2142.453	3		835	
CU	I	2141.24	2140.56	2	25.	672		V	I	2143.13	2142.45	0		489	
FE	II	2141.286	2140.612	10	212.	488		C	III	2143.16	2142.49	5	38.	34	
CA	III	2141.305	2140.630	40	16.	85		AS	IV	2143.21	2142.53	150		584	
AS	II	2141.366	2140.691	0		425		FE	III	2143.210	2142.533	25		188	
NA	III	2141.398	2140.724	450		516		MN	III	2143.267	2142.593	5		301	
MN	III	2141.402	2140.728	100		301		CR	III	2143.310	2142.636	150	41.	893	
AR	II	2141.422	2140.747	20		506		N	III	2143.34	2142.67	1		246	N
ZN	III	2141.512	2140.838	5		162		CU	I	2143.39	2142.72	5		672	
C	III	2141.59	2140.92	5	40.	34		V	II	2143.42	2142.74	4	6.	478	
FE	II	2141.710	2141.036	50		645		N	II	2143.450	2142.775	160	0.0	200	
NA	III	2141.743	2141.069	270		516		ZN	III	2143.451	2142.777	2		162	
FE	I	2141.761	2141.083	1	26.	605		AS	I	2143.48	2142.80	2		480	
MN	III	2141.763	2141.089	1		301		CR	III	2143.60	2142.93	1		490	
NI	II	2141.859	2141.184	12		835		V	II	2143.716	2143.038	60	7.	478	
CR	III	2141.861	2141.187	500	40.	893		FE	III	2143.723	2143.045	120	76.	188	
V	IV	2141.873	2141.199	40		829		CR	III	2143.76	2143.09	1		490	
CU	I	2142.09	2141.41	2		672		NI	II	2143.840	2143.165	20		835	
FE	I	2142.146	2141.471	3		378		CR	III	2144.00	2143.33	2		490	
CL	VI	2142.2	2141.5			92		MN	II	2144.05	2143.37	40		328	
N	VII	2142.3	2141.7			309		MN	III	2144.07	2143.40	5		301	
AR	II	2142.357	2141.682	20		506		FE	III	2144.148	2143.470	150	59.	188	
V	II	2142.38	2141.70	4	136.	478		TI	I	2144.19	2143.52	60		488	N
MN	III	2142.388	2141.714	80		301		MN	III	2144.22	2143.55	5		301	
FE	I	2142.3931	2141.7180	6	25.	896		CR	III	2144.241	2143.566	4		893	
CR	III	2142.423	2141.749	150		893		CO	I	2144.357	2143.679	3	28.	603	
FE	II	2142.428	2141.754	20		645		V	II	2144.384	2143.706	5	6.	478	
NA	III	2142.53	2141.86	30		516		CA	III	2144.422	2143.747	200		85	
MN	IV	2142.649	2141.974	0		799		FE	III	2144.44	2143.76	25	59.	188	
V	II	2142.650	2141.973	100	7.	478		CR	III	2144.469	2143.794	10		893	
FE	II	2142.694	2142.020	10		645		FE	III	2144.505	2143.827	120	58.	188	
TI	I	2142.72	2142.05	50		488	N	KR	II	2144.520	2143.845	40		509	
CR	III	2142.737	2142.063	40		893		MN	III	2144.520	2143.845	2		301	
NI	II	2142.744	2142.069	40		835		CR	II	2144.54	2143.86	5	284.	340	
FE	I	2142.818	2142.141	1	30.	605		AR	II	2144.559	2143.884	30		506	
MN	III	2142.927	2142.253	15		301		FE	I	2144.567	2143.892	3		378	
AR	II	2142.9513	2142.2763	20		867		N	III	2144.709	2144.034	4	26.0	521	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2144.73	2144.05	15	14.	340		FE	III	2146.294	2145.616	90	59.	188	
AS	I	2144.76	2144.08	100	20.	480		CR	III	2146.334	2145.659	200		893	
V	II	2144.78	2144.10	5		478		AS	IV	2146.38	2145.70	250		584	
AS	III	2144.80	2144.13	20		404		CU	III	2146.403	2145.727	5		724	
V	I	2144.81	2144.13	5		489		N	III	2146.54	2145.86	25	26.0	521	Q
CR	III	2144.864	2144.189	500	40.	893		CR	II	2146.65	2145.97	15	134.	340	
NA	III	2144.877	2144.202	210		516		V	II	2146.669	2145.990	40	6.	478	
MN	III	2144.890	2144.215	80		301		CR	III	2146.707	2146.032	10		893	
CR	I	2144.92	2144.24	1		341		KR	II	2146.717	2146.042	1		509	
FE	III	2144.960	2144.282	150	58.	188		FE	II	2146.733	2146.058	100	6.	488	H
CO	II	2145.02	2144.35	1		825		FE	III	2146.740	2146.062	150	59.	188	
CR	III	2145.09	2144.42	0		490		CR	II	2146.91	2146.23	10	134.	340	
NA	III	2145.213	2144.543	420		516		CR	III	2146.91	2146.23	3.		490	
FE	I	2145.254	2144.576	1	81.	605		NA	III	2146.910	2146.235	270		516	
CU	II	2145.3821	2144.7066	4		612		CO	II	2146.92	2146.24	40		825	
ZN	IV	2145.416	2144.742	15		154		AL	IV	2146.93	2146.25	15		808	
ZN	III	2145.417	2144.742	12		162		CO	I	2146.942	2146.264	12	23.	603	
FE	III	2145.421	2144.743	120	98.	188		V	I	2146.96	2146.28	6		469	
MN	III	2145.467	2144.788	35		802		FE	III	2147.017	2146.339	90	59.	168	
CR	III	2145.50	2144.82	1		490		FE	II	2147.049	2146.374	10		292	
NI	II	2145.634	2144.958	1		835		MN	II	2147.09	2146.42	2		328	
ZN	III	2145.710	2145.035	00		162		CR	III	2147.090	2146.414	250	52.	893	
CR	III	2145.73	2145.05	1		490		N	III	2147.246	2146.570	4	26.0	521	
KR	II	2145.739	2145.064	150		509		V	I	2147.32	2146.64	10	42.	489	
FE	VI	2145.76	2145.08			228	F	CO	I	2147.33	2146.65	0		603	
NI	II	2145.827	2145.152	30		835		SI	VII	2147.35	2146.67	28		940	FH
FE	I	2145.8649	2145.1891	12	27.	896		FE	I	2147.389	2146.710	2	27.	605	
CR	III	2145.87	2145.19	1		490		CR	III	2147.42	2146.74	3		490	
V	I	2145.88	2145.20	3		489		AR	II	2147.5020	2146.8261	20		867	
NA	III	2145.907	2145.232	270		516		V	IV	2147.503	2146.828	50		829	
S	IV	2146.	2145.			107		ZN	III	2147.531	2146.855	12		162	
S	V	2146.	2145.			90		CU	II	2147.5958	2146.9199	75	156.	612	
V	II	2146.05	2145.37	0		478		N	III	2147.637	2146.961	4	26.0	521	
CR	III	2146.11	2145.43	7		490		CO	II	2147.654	2146.978	10		825	
CO	I	2146.13	2145.45	12	79.	603		FE	I	2147.721	2147.045	2		896	M
CU	II	2146.1685	2145.4929	75	78.	612		CR	II	2147.87	2147.19	30	14.	340	
AL	I	2146.230	2145.555	15		198		SE	I	2147.87	2147.19	60		600	
C	III	2146.26	2145.58	1	38.	34		CR	III	2147.895	2147.219	350	41.	893	
MN	II	2146.28	2145.60	10		328		N	III	2147.982	2147.306	90	26.0	521	
NI	II	2146.285	2145.609	2		835		BE	I	2148.02	2147.35	0		330	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CO	II	2148.051	2147.375	2	11.	825		P	I	2149.82	2149.14	200	4.	496	
ZN	II	2148.095	2147.419	75		154		FE	I	2149.849	2149.170	1	80.	605	
ZN	III	2148.095	2147.419	20		162		SI	IX	2150.00	2149.33	46		940	FH
MN	II	2148.11	2147.43	10		328		MN	II	2150.029	2149.350	8		328	
V	II	2148.20	2147.52	20	6.	478		V	II	2150.065	2149.386	8	124.	478	
AL	I	2148.236	2147.560			1006		CU	I	2150.08	2149.40	10		672	
V	I	2148.26	2147.58	5		1000		FE	I	2150.095	2149.416	1	81.	605	
AS	III	2148.27	2147.59	30		404		MN	III	2150.12	2149.45	15		301	
CR	III	2148.293	2147.617	350	48.	893		N	III	2150.139	2149.465	4	26.0	521	
AR	II	2148.3584	2147.6823	20		867		CR	III	2150.196	2149.522	300	52.	893	
FE	II	2148.379	2147.702	2	213.	896	H	CA	III	2150.199	2149.523	2	16.	85	
CO	I	2148.45	2147.77	5		603		FE	III	2150.237	2149.558	10		188	
ZN	III	2148.457	2147.781	10		162		FE	I	2150.296	2149.620	1		378	
NI	I	2148.48	2147.80	200	37.	488		O	II	2150.40	2149.73	1		168	P
CR	III	2148.523	2147.847	300		893		CR	III	2150.43	2149.76	1		490	
FE	III	2148.582	2147.904	120	59.	188		V	IV	2150.528	2149.852	20		829	
SI	I	2148.587	2147.911	50	94.	608		NE	III	2150.59	2149.92	120		1031	
N	III	2148.598	2147.922	40	26.0	521		N	III	2150.715	2150.040	10	26.0	521	
V	II	2148.68	2148.00	8		478		CR	II	2150.78	2150.10	15	22.	340	
CR	I	2148.70	2148.02	10		341		CO	I	2150.79	2150.11	5		603	
MN	III	2148.731	2148.055	150		301		MN	II	2150.81	2150.13	1		328	
N	III	2148.784	2148.108	60	26.0	521		FE	I	2150.8610	2150.1844	5	25.	896	
O	II	2148.91	2148.23	1		169	M	V	IV	2150.908	2150.231	40		829	
FE	III	2148.933	2148.254	60		188		CR	I	2150.93	2150.25	1		341	
AR	III	2149.06	2148.38	50		79		MN	II	2150.935	2150.260	30		328	
FE	I	2149.073	2148.394	1	29.	605		CR	III	2151.046	2150.372	10		893	
CR	III	2149.10	2148.42	2		490		SI	I	2151.14	2150.46	2	95.	608	
V	II	2149.10	2148.42	40	6.	478		AR	II	2151.2132	2150.5365	20		867	
N	III	2149.169	2148.495	60	26.0	521		ZN	II	2151.214	2150.539	10		154	
CO	II	2149.21	2148.53	1		825		FE	II	2151.298	2150.621	5	135.	896	H
MN	III	2149.246	2148.570	100		301		CR	II	2151.33	2150.65	20	37.	340	
NA	III	2149.250	2148.574	360		516		NE	III	2151.37	2150.70	160		1031	
HE	II	2149.274	2148.598	309		309		MN	III	2151.370	2150.695	30		301	
CR	III	2149.375	2148.699	300	48.	893		AL	I	2151.376	2150.699	40		198	
CO	I	2149.387	2148.708	6	27.	603		KR	II	2151.385	2150.710	10		509	
MN	II	2149.52	2148.84	30		328		CR	II	2151.42	2150.74	30	37.	340	
CR	III	2149.573	2148.897	250	41.	893		FE	II	2151.437	2150.762	100	248.	483	H
CU	II	2149.6602	2148.9839	400	14.	612		ZN	III	2151.448	2150.773	5		162	
N	III	2149.686	2149.010	25	26.0	521		CA	I	2151.473	2150.796	3	8.	1018	A
N	III	2149.686	2149.010	25	26.0	521		V	II	2151.514	2150.835	60		478	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2151.711	2151.023	50		478		CO	I	2153.51	2152.83	2		603	
CO	II	2151.72	2151.04	1		825		GE	II	2153.580	2152.905	1		676	
AR	II	2151.7286	2151.0518	60		867		CU	II	2153.59	2152.91	0		670	
MN	III	2151.747	2151.072	10		301		P	I	2153.62	2152.94	100	9.	496	
V	IV	2151.764	2151.087	20		829		ZN	III	2153.626	2152.950	15		162	
FE	II	2151.770	2151.095	250	106.	489	H	MN	III	2153.63	2152.95	5		301	
FE	I	2151.778	2151.099	3	25.	605		FE	I	2153.6839	2153.0065	15	27.	896	
NE	III	2151.93	2151.26	100		1031		AR	II	2153.745	2153.068	30		506	
CO	I	2151.94	2151.26	2		603		NE	III	2153.83	2153.15	40		1031	
CO	II	2152.17	2151.49	0		825		CR	III	2153.854	2153.178	150		893	
CR	III	2152.18	2151.50	2		490		FE	II	2153.957	2153.281	50	225.	488	
AS	III	2152.26	2151.58	20		404		FE	III	2154.000	2153.320	25	98.	188	
N	II	2152.29	2151.61	1		246	Q	CO	I	2154.18	2153.50	12		603	
CR	III	2152.33	2151.65	2		490		FE	II	2154.290	2153.614	4		645	
NA	III	2152.330	2151.655	300		516		FE	II	2154.550	2153.874	10	6.	488	
CO	I	2152.37	2151.69	3		603		CR	III	2154.599	2153.923	250		893	
FE	I	2152.372	2151.695	10		896	M	AR	II	2154.657	2153.980	30		506	
FE	III	2152.455	2151.776	570	112.	188		MN	III	2154.663	2153.987	200		301	
NE	III	2152.46	2151.78	60		1031		CR	III	2154.697	2154.021	200		893	
MN	III	2152.485	2151.810	3		301		CO	I	2154.754	2154.074	10	24.	603	
CU	II	2152.4861	2151.8092	150	95.	612		P	I	2154.76	2154.08	150	9.	496	
V	II	2152.492	2151.812	50		478		FE	I	2154.805	2154.127	3		378	
CR	III	2152.59	2151.91	2		490		MN	III	2154.89	2154.21	1		301	
NI	I	2152.61	2151.93	15	17.	488		CO	I	2154.92	2154.24	3		603	
AR	II	2152.61	2151.94	0		506		CU	I	2154.99	2154.31	2		672	
CO	I	2152.828	2152.148	10	78.	603		CR	III	2155.01	2154.33	2		490	
AS	III	2152.86	2152.18	20		575		V	II	2155.10	2154.42	0		478	
NI	I	2152.91	2152.23	15	38.	488		FE	III	2155.100	2154.420	10		188	
CR	I	2152.95	2152.27	10	44.	341		CU	III	2155.112	2154.435	3		724	
AL	IV	2152.97	2152.29	30		888		CR	I	2155.12	2154.44	25	44.	341	
FE	II	2153.048	2152.373	120	106.	488	H	FE	I	2155.138	2154.458	2	77.	605	
NI	II	2153.058	2152.381	4		835		BR	II	2155.216	2154.540	10		606	
MN	II	2153.103	2152.427	60		328		AL	III	2155.312	2154.629	5		826	
CA	III	2153.112	2152.435	650	14.	85		CR	III	2155.336	2154.660	300	48.	893	
NI	II	2153.126	2152.449	16		835		C	II	2155.38	2154.70	1	39.	287	
FE	II	2153.157	2152.480	2	151.	896	H	TI	II	2155.38	2154.70	40	19.	488	
CR	I	2153.25	2152.57	15	44.	341		MN	III	2155.453	2154.777	10		301	
FE	III	2153.385	2152.706	90	141.	188		CR	III	2155.62	2154.94	4		490	
O	III	2153.39	2152.71	4		168		FE	I	2155.6972	2155.0197	4	25.	896	
CR	III	2153.460	2152.785	400	52.	893		CR	I	2155.77	2155.09	15	44.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	I	2155.792	2155.114	0		378		MN	II	2157.656	2156.977	5		328	
FE	I	2155.918	2155.238	2	27.	605		V	II	2157.73	2157.05	8		478	
CO	I	2155.97	2155.29	12		603		FE	III	2157.789	2157.109	10	65.	188	
ZN	III	2156.000	2155.324	15		162		CR	III	2157.868	2157.191	350		893	
V	IV	2156.013	2155.336	100		829		CO	I	2157.88	2157.20	5		603	
MN	II	2156.027	2155.349	5		328		CU	III	2157.955	2157.277	140		724	
C	II	2156.07	2155.39	1	39.	287		SI	III	2157.958	2157.280	7	95.	768	
FE	II	2156.19	2155.51	0		645		FE	III	2157.967	2157.287	25	65.	188	
CU	IV	2156.25	2155.57	10		713		NI	II	2158.168	2157.490	1		335	
MN	III	2156.254	2155.578	1		301		AR	III	2158.22	2157.53	30		79	
TI	II	2156.26	2155.58	40	19.	488		F	II	2158.305	2157.627	1		538	
AR	II	2156.266	2155.588	10		506		FE	III	2158.390	2157.710	350	70.	188	
V	II	2156.26	2155.61	15	113.	478		NI	II	2158.414	2157.736	18		835	
NI	II	2156.313	2155.635	35		835		CR	I	2158.42	2157.74	30	44.	341	
NA	IV	2156.440	2155.764	450		459		FE	I	2158.4727	2157.7943	50	24.	896	
FE	I	2156.494	2155.816	3		378		MN	III	2158.48	2157.80	3		301	
FE	II	2156.515	2155.839	120	213.	488		V	I	2158.48	2157.80	5		489	
MN	II	2156.55	2155.87	2		328		NI	I	2158.51	2157.83	50	36.	488	
FE	III	2156.550	2155.870	60		188		NI	II	2158.560	2157.882	20		835	
MN	II	2156.61	2155.94	10		328		CR	I	2158.68	2158.00	15	44.	341	
FE	III	2156.863	2156.183	60		188		FE	III	2158.687	2158.006	25		188	
CR	II	2156.90	2156.22	20	133.	340		V	I	2158.80	2158.12	15	42.	489	
C	II	2156.95	2156.28	4	39.	287		CR	III	2158.82	2158.14	2		490	
ZN	III	2156.998	2156.321	4		162		MN	II	2158.83	2158.16	1		328	
CO	I	2157.01	2156.33	5		603		CO	II	2158.855	2158.177	2		825	
FE	I	2157.182	2156.504	3		378		TI	II	2158.97	2158.29	20	19.	488	
NI	II	2157.190	2156.512	8		835		CO	I	2158.98	2158.30	8		603	
ZN	III	2157.307	2156.630	8		162		NI	I	2158.99	2158.31	150	36.	488	
CO	II	2157.330	2156.652	3	11.	825		MN	III	2158.993	2158.316	100		301	
CU	III	2157.355	2156.677	2		724		AL	IV	2159.00	2158.32	100		888	
CO	II	2157.357	2156.679	3	11.	825		V	II	2159.04	2158.36	0		478	
CU	IV	2157.36	2156.68	12		713		CU	II	2159.0900	2158.4117	2		612	
CO	II	2157.42	2156.74	7		825		NI	II	2159.145	2158.467	5		835	
FE	III	2157.430	2156.750	10		188		FE	III	2159.153	2158.472	350	145.	188	
TI	II	2157.48	2156.80	10	19.	488		FE	II	2159.195	2158.518	250	89.	488	
ZN	III	2157.489	2156.812	12		162		CL	VI	2159.2	2159.5			92	
FE	V	2157.60	2156.92			229	F	SI	I	2159.204	2158.526	5		603	
CO	II	2157.614	2156.941	10	11.	825		FE	I	2159.2123	2158.5341	15	27.	896	
NI	II	2157.619	2156.941	25		835		CO	I	2159.223	2158.542	10	24.	603	
CO	II	2157.632	2156.955		11.	488		FE	I	2159.3079	2158.6296	5	23.	896	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
MN	II	2159.37	2158.69	1	328		AL	I	2161.062	2160.383	15		198
FE	III	2159.371	2158.690	25	168		FE	II	2161.149	2160.471	20	185.	489
FE	I	2159.4128	2158.7345	2	896	25.	CR	I	2161.18	2160.50	4	44.	341
NI	II	2159.419	2158.741	50	835	13. H	V	II	2161.23	2160.55	5		478
CO	II	2159.42	2158.74	15	825		FE	III	2161.336	2160.655	90	140.	188
AR	II	2159.433	2158.755	20	506		CR	III	2161.40	2160.72	3		490
CO	I	2159.55	2158.87	4	603		FE	II	2161.453	2160.775	120		292
AR	II	2159.5616	2158.8832	20	867		NE	III	2161.56	2160.88	40		1031
FE	I	2159.5985	2158.9202	5	896	24.	CR	III	2161.685	2161.007	150		893
FE	I	2159.671	2158.993	1	378		NE	III	2161.72	2161.04	120		1031
NI	II	2159.721	2159.043	100	835		NI	I	2161.72	2161.04	30	37.	488
AR	II	2159.724	2159.046	20	506		ZN	IV	2161.738	2161.028	2		154
V	IV	2159.734	2159.055	10	829		GE	II	2161.741	2161.063	15		676
ZN	II	2159.737	2159.060	2	154		AL	IV	2161.80	2161.12	5		888
F	II	2159.754	2159.076	4	538		FE	II	2161.838	2161.159	3	213.	896
NA	III	2159.760	2159.083	270	516		FE	II	2161.839	2161.161	150	227.	488
TI	II	2159.77	2159.09	50	488	19.	NI	II	2161.896	2161.217	80	14.	835
CR	III	2159.789	2159.112	300	893	48.	NE	III	2161.90	2161.22	200		1031
V	II	2159.81	2159.13	0	478		FE	III	2161.951	2161.270	250	70.	168
FE	II	2159.829	2159.152	100	488	6.	FE	II	2161.991	2161.313	200	227.	488
FE	II	2159.88	2159.20	0	645		FE	II	2161.991	2161.313	200	370.	488
FE	I	2160.1097	2159.4313	3	896	27.	CU	II	2161.9993	2161.3205	150	132.	612
NE	III	2160.12	2159.44	100	1031		MN	II	2162.013	2161.333	5		328
LI	III	2160.129	2159.451		309		FE	III	2162.159	2161.478	25		188
TI	II	2160.18	2159.50	30	488	19.	V	II	2162.16	2161.48	20	124.	478
V	II	2160.21	2159.53	0	478		FE	I	2162.2583	2161.5792	15	27.	896
NE	III	2160.28	2159.60	80	1031		CO	I	2162.26	2161.58	3		603
FE	I	2160.317	2159.638	3	896		FE	II	2162.260	2161.582	200	119.	488
FE	I	2160.3360	2159.6575	5	896	24.	CR	II	2162.32	2161.66	10	133.	340
FE	II	2160.343	2159.665	0	645		MN	III	2162.340	2161.662	50		301
NI	II	2160.376	2159.698	25	835		GE	I	2162.39	2161.71	50		7
NA	III	2160.39	2159.71	30	516		GE	II	2162.40	2161.72	15		676
CR	III	2160.431	2159.753	90	893		NI	II	2162.471	2161.792	18		835
FE	I	2160.5142	2159.8357	5	896	78.	CU	II	2162.4796	2161.8007	2		612
FE	I	2160.590	2159.881	3	896		AR	II	2162.574	2161.895	30		506
FE	I	2160.6024	2159.9239	6	896	24.	CR	III	2162.634	2161.956	60		893
N	II	2160.605	2159.927	40	200	24.	NI	II	2162.664	2161.984	11		835
V	IV	2160.901	2160.222	20	829		FE	II	2162.701	2162.021	15	90.	896
FE	I	2160.917	2160.236	1	605	82.	CO	II	2162.71	2162.03	2		825
CA	III	2161.026	2160.347	200	85		ZN	III	2162.769	2162.091	12		162

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	III	2162.782	2162.104	1	301		CO	I	2164.64	2163.96	5	603	
CO	I	2162.878	2162.196	6	603		FE	III	2164.741	2164.059	40	188	
AL	IV	2162.92	2162.24	15	888		NI	II	2164.781	2164.102	10	835	
FE	I	2162.927	2162.248	8	896	M	SE	I	2164.83	2164.15	150	588	
CR	I	2162.93	2162.25	10	341		CL	VI	2165.0	2164.3		92	
FE	III	2162.964	2162.283	60	140.		FE	II	2165.018	2164.339	200	79.	488 H
AR	II	2162.9695	2162.2904	20			FE	II	2165.018	2164.339	200	372.	488
SI	I	2163.119	2162.440	1	608		AR	II	2165.030	2164.351	20		506
CR	III	2163.12	2162.44	2	490		CO	I	2165.04	2164.36	6		603
CR	I	2163.15	2162.47	30	341		V	II	2165.06	2164.38	15		478
NI	II	2163.160	2162.481	18	835		SC	IV	2165.112	2164.433	360		720
V	IV	2163.177	2162.498	30	829		CR	III	2165.16	2164.48	1		490
ZN	III	2163.212	2162.533	12	162		V	I	2165.22	2164.54	3		489
TI	II	2163.36	2162.68	40	468	19.	FE	I	2165.2283	2164.5486	30	24.	896
CU	IV	2163.42	2162.74	11	713		FE	II	2165.237	2164.558	250	370.	488
C	III	2163.623	2162.944	360	34		FE	II	2165.237	2164.558	250	213.	488
FE	VI	2163.69	2163.01		228	F	AL	I	2165.257	2164.577	G		198
CO	I	2163.716	2163.034	15	603	26.	ZN	III	2165.302	2164.623	3		162
MN	II	2163.77	2163.09	20	328		CR	II	2165.32	2164.67	7	333.	340
NA	III	2163.857	2163.178	150	516		CR	III	2165.350	2164.671	90		893
NI	II	2163.887	2163.208	50	835		V	I	2165.56	2164.88	15	42.	489
CU	IV	2164.03	2163.35	11	713		AL	I	2165.595	2164.915	7		198
FE	I	2164.047	2163.368	10	605	N	AR	II	2165.719	2165.039	10		506
FE	II	2164.049	2163.370	200	498	372.	FE	III	2165.753	2165.071	40		188
GE	I	2164.06	2163.38	100	7		CU	I	2165.775	2165.093	360	4.	672
CR	II	2164.08	2163.40	3	340		ZN	III	2165.788	2165.109	3		162
CA	III	2164.095	2163.416	250	85		KR	II	2165.791	2165.112	4		509
SI	I	2164.137	2163.458		608	M	HE	II	2165.928	2165.248			309
ZN	II	2164.154	2163.475	6	151		NI	II	2165.958	2165.278	30		835
FE	III	2164.157	2163.475	10	188		CR	III	2165.98	2165.30	2		490
NI	II	2164.200	2163.521	1	835		FE	III	2166.009	2165.327	40		188
CO	I	2164.256	2163.574	12	603	23.	O	III	2166.08	2165.40	25		168
V	II	2164.36	2163.68	20	478		N	II	2166.110	2165.431		15.0	521 P
NE	III	2164.45	2163.77	300	1031		ZN	III	2166.111	2165.432	4		162
SI	I	2164.453	2163.773	7	608	93.	S	III	2166.15	2165.47	100		285
CO	I	2164.46	2163.78	3	603		AS	I	2166.20	2165.52	150	20.	480
CR	III	2164.47	2163.79	12	490		CO	II	2166.22	2165.54	10		825
CO	II	2164.48	2163.80	1	825		NI	II	2166.233	2165.553	320	13.	835 H
FE	I	2164.542	2163.860	6	605	24.	FE	II	2166.234	2165.555	100	185.	488 H
CR	III	2164.554	2163.875	400	893		MN	II	2166.27	2165.58	50		328

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	III	2166.34	2165.66	80		301		NI	II	2168.495	2167.815	50		835	
FE	I	2166.432	2165.752	30		896	M	CR	III	2168.50	2167.82	5		490	
AR	II	2166.501	2165.821	60		506		FE	II	2168.558	2167.880	120	213.	488	
FE	I	2166.541	2165.861	20		605	N	MN	III	2168.573	2167.895	1		301	
FE	I	2166.662	2165.982	3		378		ZN	III	2168.705	2168.027	1		162	
CO	II	2166.68	2166.00	3		825		V	II	2168.76	2168.08	10	29.	478	
AR	III	2166.82	2166.14	70		337		FE	III	2168.789	2168.106	25		188	
NI	I	2166.83	2166.15	25	37.	488		NI	II	2168.893	2168.212	50		835	
V	II	2166.83	2166.15	20		478		CR	III	2168.936	2168.258	200		893	
FE	II	2166.878	2166.198	200	212.	488		ZN	III	2168.957	2168.279	0		162	
NE	II	2166.885	2166.205	50		563		NI	II	2169.166	2168.486	80		835	
NI	II	2166.922	2166.242	70		835		V	II	2169.24	2168.56	0		478	
CR	III	2166.947	2166.267	350	52.	893		GE	I	2169.33	2168.65	30		7	
AS	III	2166.96	2166.28	5		404		CO	I	2169.394	2168.711	18	23.	603	
FE	II	2167.02	2166.34	10		645		FE	II	2169.408	2168.730	4		645	
MN	II	2167.091	2166.412	50		328		N	II	2169.456	2168.778		15.0	521	P
FE	I	2167.267	2166.587	15		896	M	AL	I	2169.506	2168.826	3	9.	198	
SI	I	2167.279	2166.599	3		608		AS	III	2169.51	2168.83	10		575	
N	II	2167.285	2166.605		15.0	521	P	FE	VI	2169.55	2168.87			228	F
FE	III	2167.286	2166.604	60		188		FE	II	2169.603	2168.925	80	247.	488	
NI	II	2167.368	2166.688	25		835		FE	XI	2169.71	2169.03	43		914	FH
MN	II	2167.373	2166.693	50		328		FE	XII	2169.71	2169.03	74		940	FH
FE	II	2167.393	2166.713	80		645		KR	II	2169.742	2169.064	4		509	
CR	II	2167.43	2166.75	10	22.	340		NI	II	2169.776	2169.096	440	13.	835	H
NA	II	2167.45	2166.77	50		152		FE	II	2169.848	2169.169	20		645	
FE	I	2167.4526	2166.7727	40	21.	896		CA	III	2170.094	2169.414	10		85	
CU	II	2167.53	2166.85	0		670		FE	II	2170.110	2169.431	100	370.	488	
FE	III	2167.634	2166.952	350	70.	188		ZN	III	2170.172	2169.493	00		162	
V	IV	2167.881	2167.200	20		829		CR	III	2170.19	2169.51	4		490	
NI	II	2167.936	2167.256	30		835		CU	I	2170.245	2169.562	170	26.	672	
FE	I	2167.951	2167.271	1	78.	378		NI	II	2170.250	2169.569	40		835	
NI	II	2167.979	2167.299	120		835		GE	II	2170.330	2169.650	1		676	
CU	IV	2168.01	2167.33	11		713		MN	III	2170.336	2169.657	1000		488	
AL	III	2168.069	2167.373	D		826		CR	III	2170.34	2169.66	5		490	
FE	II	2168.081	2167.401	120	119.	488		NA	III	2170.383	2169.704	120		516	
CR	I	2168.36	2167.68	4	44.	341		FE	III	2170.392	2169.709	60	140.	188	
V	II	2168.37	2167.69	8	202.	478		S	III	2170.45	2169.76	100		265	
SI	I	2168.3799	2167.6996	5	92.	608		MN	III	2170.457	2169.778	1000		301	
CO	I	2168.43	2167.75	3		603		AL	I	2170.524	2169.843	G		198	
CR	II	2168.49	2167.81	3	271.	340		V	I	2170.53	2169.85	8		489	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	II	2170.548	2169.869	0		645	
FE	II	2170.629	2169.950	120	370.	488	
MN	II	2170.63	2169.95	60		328	
MN	III	2170.634	2169.955	50		301	
NI	II	2170.636	2169.955	180		835	
V	II	2170.73	2170.05	10	202.	478	
FE	II	2170.872	2170.193	50	372.	488	
AR	III	2170.88	2170.20	90		337	
ZN	III	2171.039	2170.360	15		162	
CO	II	2171.04	2170.36	1		825	
V	II	2171.06	2170.38	15		478	
V	IV	2171.062	2170.384	40		829	
SI	III	2171.10	2170.42	1	77.	768	
NE	II	2171.193	2170.513	30		563	
FE	I	2171.235	2170.554	3		378	
CO	I	2171.249	2170.565	10	23.	603	
FE	V	2171.34	2170.66			229	F
NE	II	2171.352	2170.671	70		563	
CR	III	2171.377	2170.698	400	68	893	
CR	II	2171.39	2170.71	50	36.	340	
V	I	2171.43	2170.74	60	46.	489	
CL	II	2171.522	2170.841	4		613	
MN	II	2171.57	2170.89	30		328	
AR	II	2171.595	2170.914	10		506	
CR	II	2171.65	2170.97	10	36.	340	
AR	II	2171.719	2171.038	10		506	
FE	III	2171.728	2171.045	350	70.	188	
CR	II	2171.74	2171.06	40	36.	340	
V	II	2171.82	2171.12	2		478	
SC	IV	2171.851	2171.172	160		720	
CR	II	2171.86	2171.18	30	36.	340	
ZN	III	2171.911	2171.232	12		162	
FE	III	2171.976	2171.293	10		188	
FE	I	2171.9779	2171.2968	30	24.	896	
AR	II	2171.993	2171.312	30		506	
CA	III	2172.003	2171.322	250	16.	85	
AR	II	2172.099	2171.418	50		506	
CR	I	2172.12	2171.44	4		341	
F	IV	2172.12	2171.44	40		173	
FE	II	2172.229	2171.550	10	372.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	2172.23	2171.55	20	36.	340	
SI	III	2172.240	2171.559	3	82.	768	
CA	III	2172.247	2171.566	350		85	
CO	I	2172.36	2171.68	0		603	
CR	III	2172.50	2171.82	4		490	
CU	I	2172.500	2171.817	140	26.	672	
V	II	2172.524	2171.840	25	209.	478	
FE	II	2172.735	2172.056	10	372.	488	
CR	III	2172.81	2172.13	1		490	
FE	I	2172.8236	2172.1443	2	23.	896	
CO	I	2172.858	2172.175	4	77.	603	
FE	I	2172.902	2172.221	1		378	
CO	III	2172.94	2172.26	5	70.	673	
FE	I	2173.013	2172.332	0	82.	378	
AR	II	2173.022	2172.341	20		506	
NA	II	2173.17	2172.49	0		152	
CU	II	2173.21	2172.53	1		670	
CR	III	2173.25	2172.57	4	48.	490	
FE	I	2173.2662	2172.5851	15	23.	896	
AR	II	2173.318	2172.637	20		506	
FE	II	2173.359	2172.679	80	372.	488	
CA	III	2173.391	2172.710	25	16.	85	
V	I	2173.44	2172.75	7		489	
AS	II	2173.455	2172.773	0		425	
CO	II	2173.556	2172.875	3	10.	825	
CR	III	2173.59	2172.91	10		490	
FE	II	2173.669	2172.989	150	134.	488	
MN	III	2173.828	2173.145	30		802	
V	I	2173.83	2173.15	80	46.	1000	
MN	I	2173.832	2173.195	3		148	
CO	I	2173.857	2173.173	10	74.	603	
GE	II	2173.889	2173.204	10		676	
AR	II	2173.890	2173.209	10		506	
FE	I	2173.8951	2173.2136	25	24.	896	
FE	II	2173.900	2173.220	200	248.	488	
CO	II	2174.011	2173.330	18	10.	825	
NI	I	2174.215	2173.535	20	59.	488	
GE	I	2174.36	2173.68	30		7	
FE	II	2174.400	2173.720	150	79.	488	
AR	II	2174.42	2173.74	0		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
ZN	III	2174.485	2173.805	12		162		MN	II	2176.24	2175.55	80		328	
FE	III	2174.513	2173.829	120	75.	188		AR	II	2176.318	2175.636	100		506	
CO	I	2174.529	2173.845	10	23.	603		NI	II	2176.514	2175.832	30		835	
C	II	2174.529	2173.848	60	14.06	287		V	II	2176.517	2175.833	5		478	
V	IV	2174.575	2173.893	10		829		AR	II	2176.6463	2175.9644	20		867	
CO	II	2174.71	2174.03	10		825		FE	III	2176.656	2175.972	10		188	
AL	I	2174.752	2174.071	3	9.	198		MN	I	2176.698	2176.014	2		148	
AL	I	2174.794	2174.113	G	9.	198		FE	II	2176.708	2176.027	10		292	
MN	I	2174.80	2174.12	0		148		CO	I	2176.71	2176.03	3		603	
NI	II	2174.800	2174.119	6		835		NI	II	2176.783	2176.101	7		835	
FE	I	2174.824	2174.142	0		378		CR	I	2176.87	2176.19	3		341	
MN	III	2174.832	2174.152	700		301		AS	I	2176.95	2176.26	5	19.	480	
C	II	2174.850	2174.168	25	14.06	287		FE	II	2177.048	2176.367	50		292	
ZN	III	2174.869	2174.189	8		162		AR	II	2177.069	2176.387	10		506	
AR	II	2174.872	2174.190	20		506		FE	I	2177.080	2176.396	1	79.	605	
CR	III	2174.94	2174.26	5		490		CO	I	2177.178	2176.494	4	120.	603	
NI	II	2175.012	2174.331	10		835		FE	II	2177.200	2176.519	40		645	
NI	II	2175.078	2174.396	30		835		NE	III	2177.35	2176.67	100		1031	
NI	I	2175.160	2174.480	50	36.	488		CR	III	2177.364	2176.683	150		893	
NA	III	2175.21	2174.53	300		516		NI	II	2177.478	2176.796	2		835	
CO	II	2175.230	2174.548	25	1.	825		FE	II	2177.507	2176.826	200	370.	489	
AR	II	2175.2654	2174.5839	50		867		AL	IV	2177.52	2176.84	5		888	
CO	I	2175.273	2174.589	30	19.	603		FE	I	2177.5226	2176.8404	20	23.	896	
FE	III	2175.342	2174.658	570	70.	188		MN	III	2177.552	2176.871	900		301	
NI	II	2175.348	2174.666	440	14.	835	H	SI	III	2177.576	2176.894	40	77.	768	
FE	II	2175.529	2174.849	80	135.	488		C	III	2177.645	2176.963	70	14.	34	
CO	I	2175.58	2174.90	8		603		CO	I	2177.653	2176.968	2		603	
CO	II	2175.598	2174.916	2	11.	825		V	I	2177.68	2177.00	100	46.	1000	
CR	III	2175.63	2174.95	1		490		FE	II	2177.706	2177.025	100	106.	488	H
CU	II	2175.6636	2174.9820	250	155.	612		NI	II	2177.768	2177.086	220	40.	835	H
BE	I	2175.668	2174.986	60		333		CO	II	2177.77	2177.09	5		825	
CR	III	2175.74	2175.06	5		490		AR	III	2177.90	2177.22	100		337	
BE	I	2175.785	2175.103	80		333		V	I	2177.92	2177.24	10	46.	1000	
FE	II	2175.788	2175.108	6		645		S	III	2177.98	2177.30	200		285	
NI	II	2175.829	2175.147	390	13.	835	H	NI	II	2178.043	2177.361	200	40.	835	
CO	II	2175.99	2175.31	10		825		CO	II	2178.05	2177.37	5		825	
CR	III	2176.10	2175.42	1		490		AL	I	2178.078	2177.396	25	10.	198	
CO	II	2176.13	2175.45	1		825		SI	I	2178.118	2177.432	10	91.	608	
ZN	III	2176.133	2175.453	12		162		CR	III	2178.14	2177.46	0		490	
FE	II	2176.136	2175.454	10	90.	896	H	NI	II	2178.213	2177.531	25		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
GE	II	2178.337	2177.655	15		676		CO	I	2180.92	2180.23	7		603	
FE	I	2178.3768	2177.6946	5	80.	896		AR	II	2180.930	2180.247	10		506	
MG	III	2178.38	2177.69	640		2		FE	II	2180.937	2180.255	120	370.	488	
NE	III	2178.41	2177.73	160		1031		P	V	2180.969	2180.286	200		524	
KR	II	2178.454	2177.773	60		509		FE	III	2181.095	2180.410	350	70.	188	
ZN	III	2178.508	2177.827	1		162		CO	II	2181.15	2180.47	3		825	
NI	II	2178.529	2177.847	25		835		NI	II	2181.156	2180.473	280	40.	835	H
CO	I	2178.74	2178.06	8		603		CO	II	2181.287	2180.604	6	23.	825	
FE	I	2178.757	2178.073	35	21.	605		CR	III	2181.35	2180.67	3		490	
KR	II	2178.766	2178.085	1		509		CU	II	2181.4344	2180.7516	50	104.	612	
S	III	2178.80	2178.12	100		285		AR	II	2181.472	2180.789	10		506	
FE	I	2178.8007	2178.1182	170	22.	896		ZN	III	2181.515	2180.833	25		162	
CR	II	2179.14	2178.46	3	271.	340		SI	III	2181.519	2180.836	25	77.	768	
CR	III	2179.16	2178.48	3		490		FE	I	2181.5514	2180.8686	15	23.	896	
CO	II	2179.26	2178.58	5		825		FE	II	2181.552	2180.870	120	370.	488	
CA	III	2179.266	2178.584	300		85		NE	III	2181.57	2180.89	200		1031	
CO	I	2179.28	2178.59	25		603		AR	II	2181.639	2180.956	5		506	
SC	VI	2179.3	2178.6			108	F	AL	I	2181.679	2180.996	40	10.	198	
CR	III	2179.321	2178.640	150		893		FE	VI	2181.78	2181.10			228	F
FE	III	2179.362	2178.677	60		188		CO	II	2181.802	2181.119	2	23.	825	
NE	III	2179.37	2178.69	80		1031		CO	I	2181.806	2181.121	12	120.	603	
FE	I	2179.479	2178.797	2		378		FE	I	2181.818	2181.133	1	20.	605	
CU	I	2179.629	2178.944	400	3.	672		NI	II	2181.818	2181.135	1		835	
FE	III	2179.756	2179.071	25		188		FE	II	2181.819	2181.137	80	370.	488	
NI	II	2179.792	2179.110	12		835		AR	II	2181.894	2181.211	70		506	
FE	III	2179.943	2179.258	90	75.	188		FE	III	2181.895	2181.210	10	123.	188	
NI	II	2180.035	2179.352	200	40.	835	H	FE	II	2182.049	2181.367	2		645	
CR	II	2180.08	2179.39	1		340		AR	II	2182.063	2181.378	10		506	
CU	II	2180.0929	2179.4103	700	14.	612	H	FE	II	2182.089	2181.407	50	370.	488	
NI	II	2180.135	2179.453	20	12.	835		FE	III	2182.092	2181.407	40	122.	188	
CR	II	2180.40	2179.72	2	221.	340		CU	II	2182.1080	2181.4251	20		612	
BR	IV	2180.46	2179.77	100		574		CR	III	2182.123	2181.441	120	51.	893	
FE	II	2180.522	2179.840	4		645		CR	I	2182.21	2181.53	4		341	
FE	II	2180.62	2179.94	0		645		CR	II	2182.23	2181.54	4	221.	340	
NI	II	2180.673	2179.990	50	30.	835		O	III	2182.34	2181.66	4		168	
P	V	2180.725	2180.042	50		524		CO	II	2182.399	2181.716	8	11.	825	
CO	I	2180.745	2180.060	10	20.	603		CU	I	2182.405	2181.720	410	3.	672	
MN	III	2180.750	2180.068	3		301		NE	II	2182.458	2181.775	20		563	
AR	II	2180.772	2180.089	20		506		CR	III	2182.489	2181.807	300		893	
CO	II	2180.80	2180.12	20		825		MN	III	2182.535	2181.853	800		301	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	I	2182.66	2181.97	20	46.	1000		V	II	2184.86	2184.17	5	145.	478	
CO	III	2182.68	2182.00	10	23.	825		NI	XIV	2184.88	2184.20	31		940	FH
CA	III	2182.697	2182.014	250		85		NI	II	2184.952	2184.268	7		835	
FE	III	2182.725	2182.040	40		188		CO	I	2185.000	2184.314	8	17.	603	
CR	III	2182.73	2182.05	15		490		V	II	2185.10	2184.41	2		478	
SI	III	2182.732	2182.049	15	77.	768		ZN	III	2185.123	2184.440	6		162	
KR	II	2182.828	2182.145	4		509		FE	I	2185.14	2184.46	1		378	
V	I	2182.91	2182.22	120	46.	1000		V	I	2185.22	2184.53	2		1000	
MN	III	2182.93	2182.25	3		301		NI	II	2185.289	2184.605	280	13.	835	H
NE	III	2182.96	2182.28	60		1031		ZN	III	2185.397	2184.714	8		162	
NI	I	2183.06	2182.38	35	16.	488		NI	II	2185.559	2184.875	35		835	
CO	I	2183.273	2182.587	15	23.	603		MN	III	2185.563	2184.880	800		301	
O	II	2183.32	2182.64	400		36	P	V	II	2185.56	2184.89	2		478	
CR	III	2183.366	2182.683	250		893		MN	I	2185.598	2184.912	10		148	
MN	I	2183.459	2182.773	15		148		CO	I	2185.636	2184.950	10	118.	603	
CR	III	2183.483	2182.800	350		893		CR	III	2185.716	2185.033	500	68.	893	
NA	III	2183.529	2182.846	270		516		FE	III	2185.766	2185.080	25		188	
AR	II	2183.530	2182.849	5		506		N	III	2185.785	2185.101	25	32.	521	
CU	II	2183.5426	2182.8593	45		612		MN	III	2185.816	2185.132	600		301	
FE	III	2183.574	2182.889	40	75.	168		FE	I	2185.900	2185.216	0		378	
AS	I	2183.62	2182.94	20	18.	480		FE	III	2185.950	2185.264	60		188	
CR	III	2183.749	2183.066	90		893		NA	III	2185.984	2185.300	240		516	
V	II	2183.77	2183.08	2		478		V	II	2186.076	2185.399	50	209.	478	
NI	II	2183.901	2183.217	80		835		SC	IV	2186.114	2185.430	550		720	
NE	III	2183.92	2183.24	40		1031		AR	II	2186.173	2185.489	50		506	
CO	II	2183.96	2183.28	2		825		NA	III	2186.182	2185.498	240		516	
FE	II	2183.984	2183.301	120	89.	488		NI	II	2186.188	2185.504	500	40.	835	H
CO	I	2184.02	2183.33	3		603		FE	III	2186.23	2185.54	25		188	
FE	I	2184.151	2183.465	1	23.	605		FE	II	2186.306	2185.622	80	271.	488	
FE	II	2184.151	2183.468	80	119.	488		FE	III	2186.340	2185.654	60	65.	188	
FE	II	2184.216	2183.533	20		645		CR	III	2186.43	2185.75	1		490	
MN	III	2184.229	2183.546	3		301		CR	III	2186.64	2185.96	1		490	
CR	III	2184.427	2183.744	350	60.	893		V	II	2186.65	2185.96	40	210.	478	
FE	I	2184.4797	2183.7963	8		896		CR	I	2186.68	2185.99	4		341	
FE	II	2184.498	2183.815	100	247.	645		CO	I	2186.716	2186.030	3	81.	603	
MN	III	2184.521	2183.838	50		301		AS	II	2186.733	2186.050	10		425	
NI	I	2184.59	2183.91	10	62.	488		NI	II	2186.804	2186.120	20		835	
FE	III	2184.666	2183.980	90	65.	188		CR	III	2186.89	2186.21	0		490	
AL	IV	2184.73	2184.05	10		888		FE	III	2186.893	2186.207	10	75.	188	
FE	III	2184.800	2184.114	40	122.	168		FE	II	2186.901	2186.217	4		645	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
KR	II	2186.910	2186.226	1		509		BR	II	2188.278	2187.596	50		606	
FE	I	2186.9340	2186.2500	6	20.	896		NI	I	2188.28	2187.60	5	16.	468	
CA	III	2186.947	2186.263	60		85		FE	III	2188.353	2187.667	60		188	
CR	III	2187.07	2186.39	3		490		FE	II	2188.360	2187.678	100	89.	468	H
V	IV	2187.078	2186.394	0		829		NI	II	2188.380	2187.696	2		835	
P	V	2187.103	2186.419	150		524		CR	II	2188.39	2187.70	2		340	
CU	III	2187.132	2186.448	2		724		CR	III	2188.40	2187.72	3		490	
GE	I	2187.1348	2186.4508	50	12.	7		AS	I	2188.44	2187.75	5		460	
CO	I	2187.14	2186.45	8	24.	603		MN	III	2188.442	2187.756	75		602	
FE	I	2187.1702	2186.4862	155	21.	896		V	III	2188.46	2187.78	15		325	
MN	III	2187.238	2186.554	60		301		CO	II	2188.47	2187.78	7		825	
HE	II	2187.288	2186.604			309		FE	II	2188.550	2187.868	150	135.	488	
NE	IN	2187.30	2186.62	60.		1031	M	CR	III	2188.630	2187.948	250		833	
KR	II	2187.375	2186.691	25		509		V	I	2188.64	2187.95	15	46.	1000	
CO	I	2187.461	2186.777	12	73.	603		CO	II	2188.71	2188.02	2		825	
FE	II	2187.546	2186.862	30		645		NI	II	2188.729	2188.045	25	12.	835	H
CR	III	2187.55	2186.87	1		490		V	I	2188.75	2188.06	3	43.	1000	
CR	I	2187.56	2186.87	5	43.	341		CR	I	2188.78	2188.09	6	43.	341	
FE	III	2187.562	2186.876	90		188		CR	III	2188.79	2188.11	3		490	
FE	I	2187.5766	2186.8922	60	22.	896		N	III	2188.887	2188.205	200	32.	521	
NI	II	2187.577	2186.893	18		835		F	III	2188.964	2188.280	200		537	
KR	II	2187.606	2186.922	4		509		AR	II	2189.034	2188.350	0		506	
NI	I	2187.62	2186.94	10	37.	488		N	III	2189.051	2188.379	150	32.	521	
V	II	2187.63	2186.94	20	104.	478		C	II	2189.07	2188.39	10	29.	287	
CO	II	2187.716	2187.032	7	11.	825		AR	II	2189.176	2188.492	30		506	
O	III	2187.75	2187.07	4		168	P	N	III	2189.20	2188.52	25		168	Q
BR	II	2187.751	2187.067	1		606		CO	II	2189.22	2188.54	3		825	
S	III	2187.82	2187.14	200		285		NI	II	2189.226	2188.541	25		835	
FE	I	2187.8787	2187.1946	110	21.	896		S	III	2189.27	2188.58	200		285	
FE	VI	2187.89	2187.21			228	F	CR	III	2189.27	2188.59	1		490	
CR	III	2187.90	2187.22	3		490		MN	III	2189.354	2188.671	5		301	
CO	I	2187.971	2187.284	5	75.	603		N	III	2189.40	2188.62	40		168	Q
FE	II	2187.991	2187.309	30		645		C	II	2189.40	2188.72	4	29.	287	
NI	II	2187.999	2187.315	25		835		FE	III	2189.419	2188.732	40		188	
AR	II	2187.9995	2187.3153	60		867		FE	II	2189.512	2188.829	10		292	
V	I	2188.08	2187.39	10	45.	1000		V	II	2189.55	2188.86	2		478	
FE	II	2188.126	2187.444	120	271.	484		NI	II	2189.602	2188.918	2		835	
C	II	2188.16	2187.48	4	29.	287		AR	II	2189.64	2188.95	0		506	
TI	II	2188.18	2187.50	10		601		CO	II	2189.674	2188.990	10	11.	625	H
V	IV	2188.246	2187.562	5		829		FE	III	2189.841	2189.154	10		138	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	II	2189.859	2189.174	4		835		CR	II	2191.21	2190.52	2	132.	340	
FE	I	2189.870	2189.183	1	114.	605		NI	II	2191.242	2190.557	80		835	
O	II	2189.88	2189.20	10		168		Q	II	2191.25	2190.57	200		36	P
CR	III	2189.91	2189.23	3		490		MN	II	2191.32	2190.64	5		328	
CR	II	2189.93	2189.24	3	221.	340		CO	II	2191.357	2190.672	18	22.	825	
AS	IV	2189.97	2189.29	1		584		S	III	2191.36	2190.67	200		285	
CO	I	2190.036	2189.350	3	119.	603		CR	III	2191.451	2190.768	350	51.	893	
CO	II	2190.05	2189.37	2		825		SC	XVII	2191.5	2190.8			913	F P
CU	II	2190.0547	2189.3701	25		612		CR	I	2191.51	2190.83	2	43.	488	
FE	I	2190.080	2189.393	1	78.	605		FE	I	2191.564	2190.879	3		378	
CR	III	2190.09	2189.41	3		490		MN	I	2191.571	2190.884	2		148	
NA	III	2190.10	2189.42	30		516		N	II	2191.583	2190.900		15.0	521	P
NI	II	2190.163	2189.498	45		835		CR	II	2191.61	2190.92	5	209.	340	
AR	II	2190.193	2189.508	10		506		CO	II	2191.65	2190.96	2		825	
C	II	2190.30	2189.62	4	29.	287		NI	II	2191.652	2190.967	30	29.	835	
CR	II	2190.31	2189.62	7		340		CR	II	2191.77	2191.08	2	221.	340	
CU	II	2190.3152	2189.6305	700	53.	612		V	I	2191.79	2191.10	30	45.	1000	
N	II	2190.326	2189.643		15.0	521	P	CO	II	2191.83	2191.15	2		825	
V	I	2190.37	2189.68	2		1000		NE	III	2191.84	2191.16	80		1031	M
MN	III	2190.37	2189.69	5		301		CO	I	2191.85	2191.16	3		603	
FE	I	2190.405	2189.720	1		378		FE	I	2191.8893	2191.2043	25	22.	896	
N	II	2190.47	2189.78	20		200		NI	I	2191.89	2191.21	15	61.	488	
AR	II	2190.470	2189.784	10		506	N	CA	III	2191.894	2191.209	200		85	
CR	III	2190.489	2189.806	200		893		FE	III	2191.902	2191.215	150	65.	188	
MN	III	2190.535	2189.852	80		301		CR	III	2191.950	2191.267	200	47.	893	
V	I	2190.64	2189.95	6	43.	1000		AR	II	2191.972	2191.287	50		506	
FE	III	2190.762	2190.075	25	122.	188		MN	I	2192.100	2191.413	100		148	
CR	III	2190.781	2190.098	250	60.	893		N	III	2192.119	2191.436	60	31.	521	
TI	II	2190.81	2190.13	10		601		NE	III	2192.13	2191.45	20		1031	M
CR	II	2190.82	2190.13	4		340		NI	I	2192.25	2191.56	00		602	
NA	III	2190.870	2190.187	330		516		BE	III	2192.25	2191.57	5		217	
F	III	2190.903	2190.218	80		537		AR	II	2192.264	2191.579	40		506	
NI	I	2190.906	2190.223	75	36.	488		CR	III	2192.281	2191.598	300	51.	893	
V	II	2190.91	2190.22	30	104.	478		CR	I	2192.33	2191.64	8	43.	341	
AR	II	2190.9194	2190.2346	20		867		V	I	2192.34	2191.65	3	45.	1000	
NE	III	2190.97	2190.29	140		1031		O	II	2192.34	2191.66	10		168	P
NE	II	2191.111	2190.426	40		563		FE	I	2192.5242	2191.8391	155	21.	896	
V	II	2191.17	2190.48	8	145.	478		FE	II	2192.619	2191.935	100	367.	488	
CU	II	2191.19	2190.50	1		670		NI	II	2192.721	2192.036	100		835	
AR	II	2191.196	2190.511	40		506		NI	II	2192.775	2192.090	540		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
KR	II	2192.783	2192.099	60		509		FE	VI	2195.22	2194.54			228	F
NI	I	2192.79	2192.10	00		602		V	I	2195.34	2194.65		43.	1000	
AR	II	2192.9115	2192.2262	20		667		CR	III	2195.343	2194.659	200		893	
CU	II	2192.9534	2192.2681	900	14.	612	H	MN	III	2195.529	2194.843	55		802	
NI	II	2193.026	2192.341	120		835		V	II	2195.53	2194.84	8	209.	478	
KR	II	2193.026	2192.342	25		509		CR	I	2195.59	2194.90	18	43.	341	
TI	III	2193.07	2192.39	15		227		AR	II	2195.5927	2194.9069	20		867	
KR	II	2193.111	2192.427	1		509		NE	III	2195.60	2194.92	100		1031	
CO	II	2193.175	2192.490	25	22.	825		KR	II	2195.601	2194.917	1		509	
S	III	2193.19	2192.50	200		285		CO	II	2195.62	2194.93	3		825	
N	III	2193.277	2192.593	10	31.	521		FE	III	2195.769	2195.081	60	123.	188	
FE	II	2193.358	2192.674	50	226.	488		V	II	2195.79	2195.10	2		478	
NE	III	2193.42	2192.74	140		1031	M	CR	III	2195.82	2195.13	5		490	
FE	I	2193.504	2192.819	3		378		CO	I	2195.86	2195.17	2		603	
FE	III	2193.562	2192.875	40		188		CO	II	2195.91	2195.22	1		825	
MN	III	2193.575	2192.891	4		301		ZN	III	2195.934	2195.249	1		162	
V	II	2193.60	2192.91	2		478		CL	II	2195.994	2195.308	93		613	
NI	II	2193.694	2193.009	1		835		V	IV	2196.074	2195.388	10		829	
CR	II	2193.80	2193.11	10		340		AR	II	2196.1296	2195.4437	50		867	
CO	III	2193.94	2193.26	8	70.	673		CO	II	2196.20	2195.52	1		825	
FE	III	2193.982	2193.294	60		188		FE	III	2196.220	2195.532	90	123.	188	
CR	II	2193.99	2193.30	20	151.	340		P	II	2196.26	2195.57	10		496	
V	II	2194.03	2193.34	2		478		O	II	2196.27	2195.59	200		36	
FE	I	2194.099	2193.411	2	76.	605		CU	II	2196.3685	2195.6826	400	134.	612	
V	I	2194.16	2193.47	6		1000		V	II	2196.38	2195.69	15	201.	478	
CR	III	2194.19	2193.51	1		490		CR	II	2196.47	2195.78	4	132.	340	
NI	II	2194.220	2193.534	50		835		CO	II	2196.52	2195.83	8	23.	825	
MN	III	2194.251	2193.567	150		301		FE	III	2196.554	2195.866	60	74.	188	
FE	I	2194.252	2193.564	2	114.	605		AS	II	2196.614	2195.928	0		425	
CO	II	2194.280	2193.595	30	22.	825		CR	III	2196.68	2196.00	2		490	
TI	III	2194.29	2193.60	7		227		FE	II	2196.680	2195.995	80		645	
ZN	III	2194.412	2193.728	12		162		CO	I	2196.71	2196.02	3		603	
MN	I	2194.450	2193.762	20		148		FE	I	2196.7281	2196.0429	125	21.	896	
V	I	2194.51	2193.82	5	43.	1000		NA	III	2196.80	2196.12	90		516	
ZN	III	2194.522	2193.838	5		162		CA	III	2196.855	2196.169	40		85	
CO	II	2194.78	2194.09	2		825		V	III	2196.88	2196.20	10	12.	791	
CR	III	2194.89	2194.21	2		490		FE	III	2196.928	2196.240	10		188	
BE	I	2194.935	2194.249	1		330		AR	II	2196.973	2196.287	10		506	
CO	II	2194.94	2194.25	1		825		V	I	2196.98	2196.29	5	44.	1000	
CR	III	2195.11	2194.43	2		490		NI	I	2197.02	2196.34	00		602	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AR	II	2197.075	2196.389	10		506		CL	II	2199.050	2198.363	66		613	
V	I	2197.09	2196.40	40	45.	1000		NI	II	2199.110	2198.423	110		835	
CO	I	2197.146	2196.458	15	19.	603		V	II	2199.213	2198.524	20	145.	478	
CO	II	2197.15	2196.46	10		825		CU	I	2199.249	2198.560	1		672	
NI	I	2197.16	2196.47	0		602		CR	III	2199.317	2198.631	570	68.	893	
MN	I	2197.191	2196.503	3		148		FE	II	2199.346	2198.660	40	367.	488	
V	I	2197.25	2196.56	2		489		GE	I	2199.4010	2198.7144	200	11.	7	
CL	II	2197.470	2196.784	87		613		CO	I	2199.453	2198.764	2	23.	603	
MN	II	2197.512	2196.826	5		329		ZN	III	2199.475	2198.789	00		162	
CR	II	2197.53	2196.84	15	151.	340		CR	I	2199.60	2198.91	3	43.	488	
CO	I	2197.593	2196.904	3		603		GE	III	2199.63	2198.94	1000		402	
CR	II	2197.75	2197.06	2		340		MN	III	2199.722	2199.033	75		802	
AR	II	2197.759	2197.072	0		506		CR	II	2199.78	2199.09	2	13.	340	
NE	III	2197.79	2197.10	60		1031		CO	II	2199.87	2199.18	1		825	
FE	I	2197.919	2197.230	1	20.	605		AL	I	2199.870	2199.183	3	8.	198	
CO	II	2197.92	2197.23	20		825		NI	II	2199.875	2199.188	20		835	
FE	II	2197.958	2197.273	50	226.	488		TI	III	2199.910	2199.223	160		227	
CO	I	2198.03	2197.34	8		603		CR	II	2199.92	2199.23	5	132.	340	
NI	I	2198.032	2197.347	100	36.	488		MN	I	2200.10	2199.41	1		148	
CR	III	2198.04	2197.35	1		490		V	II	2200.132	2199.443	10	201.	478	
F	IV	2198.05	2197.36	1		173		CU	I	2200.272	2199.583	410	23.	672	
FE	VI	2198.16	2197.47			228	F	MN	II	2200.29	2199.60	10		328	
KR	II	2198.180	2197.495	90		509		AL	I	2200.33	2199.64		8.	488	
N	II	2198.192	2197.506	70	18.0	200		V	II	2200.349	2199.660	7	201.	478	
GE	II	2198.307	2197.621	100	13.	676		CU	I	2200.441	2199.752	360	23.	672	
CO	I	2198.322	2197.633	5		603		MN	II	2200.47	2199.78	80		328	
MN	III	2198.340	2197.655	5		301		ZN	III	2200.533	2199.847	3		162	
AR	II	2198.472	2197.786	10		506		CR	III	2200.83	2200.14	4		490	
CA	II	2198.473	2197.787	10	8.	166		KR	II	2200.855	2200.169	10		509	
NI	II	2198.541	2197.854	25		835		V	I	2200.863	2200.174	15	43.	1000	
NE	III	2198.55	2197.86	140		1031		CO	II	2200.93	2200.24	5		825	
CU	II	2198.5560	2197.8696	5		612		S	III	2200.95	2200.26	100		285	
CR	III	2198.583	2197.898	500	51.	893		FE	II	2200.964	2200.278	20		645	
NI	II	2198.622	2197.936	140		835		CU	II	2200.99	2200.30	1		670	
CO	I	2198.67	2197.98	3		603		FE	I	2201.0769	2200.3900	80	21.	896	
S	III	2198.79	2198.10	100		285		KR	II	2201.095	2200.409	1		509	
MN	I	2198.820	2198.131	10		148		CO	II	2201.101	2200.414	15	11.	825	
CO	II	2198.976	2198.289	10	10.	825		CR	II	2201.19	2200.50	8		340	
CR	I	2199.01	2198.32	22	43.	341		CU	II	2201.1957	2200.5088	100	135.	612	
AS	I	2199.03	2198.34	5	19.	480		NI	I	2201.40	2200.71	20	37.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2201.4113	2200.7243	80	21.	696		C	III	2203.23	2202.54	5	27.	34	
CA	I	2201.415	2200.728	10	7.	1018	A	CO	I	2203.28	2202.59	3		603	
NE	III	2201.51	2200.82	100		1031	M	MN	II	2203.39	2202.70	40		328	
CU	II	2201.69	2201.00	1		670		V	I	2203.413	2202.724	60	45.	1000	
CR	III	2201.692	2201.006	250	51.	893		NA	III	2203.518	2202.831	450		516	
NI	II	2201.715	2201.028	25		835		CR	II	2203.62	2202.93	7		340	
KR	II	2201.753	2201.067	25		509		CO	II	2203.666	2202.979	3	1.	825	
FE	I	2201.806	2201.117	4	20.	605		NI	II	2203.756	2203.068	40		835	
CR	III	2201.883	2201.197	350	47.	893		MN	III	2203.794	2203.104	45		802	
FE	VI	2201.90	2201.21			228	F	CR	III	2203.909	2203.222	400	47.	893	
NE	III	2201.92	2201.23	80		1031		NI	II	2204.061	2203.373	25		835	
CO	I	2201.924	2201.235	4	76.	603		CO	II	2204.087	2203.400	3		825	
AR	II	2201.923	2201.242	20		506		FE	II	2204.107	2203.420	10	406.	488	
TI	II	2202.00	2201.31	10		601		NI	II	2204.155	2203.468	60		835	
FE	II	2202.095	2201.408	0		1026		ZN	II	2204.198	2203.511	15		154	
NI	II	2202.096	2201.409	240	13.	835	H	CO	I	2204.22	2203.53	4		603	
CO	I	2202.10	2201.41	6		603		MN	II	2204.236	2203.547	2		328	
CR	III	2202.142	2201.455	250	60.	893		N	II	2204.321	2203.633	40	18.0	200	
CR	III	2202.15	2201.46	15	68.	490		V	I	2204.348	2203.658	4	43.	1000	
SE	III	2202.23	2201.54	10		587		FE	II	2204.40	2203.71	0		645	
CO	I	2202.24	2201.55	6		603		CR	III	2204.431	2203.744	200		893	
AR	II	2202.260	2201.573	10		506		NE	IV	2204.57	2203.88	50		1022	
FE	II	2202.277	2201.590	5	367.	896		CR	II	2204.58	2203.89	10	13.	340	
NI	I	2202.28	2201.59	40	60.	483		CO	I	2204.65	2203.96	3		603	
MN	II	2202.40	2201.71	1		329		BR	II	2204.678	2203.991	10		606	
CO	I	2202.48	2201.79	4		603		FE	II	2204.774	2204.087	2		645	
AS	II	2202.529	2201.841	10		425		NE	III	2204.85	2204.16	40		1031	M
MN	II	2202.60	2201.91	1		328		V	III	2205.00	2204.31	100	12.	791	
CR	III	2202.636	2201.949	350	58.	893		CA	III	2205.003	2204.315	300	16.	85	
MN	I	2202.649	2201.960	7		148		CR	III	2205.268	2204.580	250	51.	893	
CR	II	2202.73	2202.04	3		340		NA	VI	2205.281	2204.593	5		284	
FE	II	2202.804	2202.117	10		645		AL	I	2205.307	2204.619	7	8.	198	
AR	II	2202.822	2202.135	10		506		AL	I	2205.354	2204.668	7	7.	198	
NE	III	2202.91	2202.22	140		1031		AR	II	2205.386	2204.698	10		506	
CR	II	2202.99	2202.30	3		340		CO	I	2205.486	2204.796	18	74.	603	
CR	III	2203.050	2202.363	40		893		NI	II	2205.487	2204.799	10		835	
KR	II	2203.077	2202.390	25		509		MN	III	2205.515	2204.827	5		301	
CA	III	2203.091	2202.404	250		85		V	I	2205.620	2204.930	12	43.	1000	
FE	III	2203.148	2202.458	150	74.	188		NE	III	2205.67	2204.98	140		1031	
MN	I	2203.178	2202.489	2		148		MN	I	2205.747	2205.057	10		148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	II	2205.753	2205.065	15	22.	825		NI	I	2208.17	2207.48	00		602	
AS	I	2205.85	2205.16	10	18.	480		ZN	III	2208.342	2207.656	3		162	
CR	I	2205.89	2205.20	15	43.	341		CO	I	2208.388	2207.697	10	22.	603	
CR	II	2206.03	2205.34	4	247.	340		NI	I	2208.43	2207.74	00	9.	602	
SC	IV	2206.152	2205.464	550		720		FE	II	2208.466	2207.780	0	225.	488	
CO	II	2206.213	2205.525	15	22.	825		FE	III	2208.537	2207.847	10		188	
NI	II	2206.236	2205.548	700		835		CO	I	2208.544	2207.853	9	22.	603	
CU	I	2206.34	2205.65	5		672		MN	II	2208.544	2207.854	5		328	
V	II	2206.39	2205.70	2		478		CO	II	2208.61	2207.92	30	23.	825	
AR	II	2206.426	2205.738	40		506		SI	I	2208.6669	2207.9783	110	3.	608	
NI	II	2206.471	2205.793	20		835		V	I	2208.667	2207.976	3		000	
GE	II	2206.539	2205.851	100	13.	676		NE	III	2208.73	2208.04	80		031	
N	II	2206.543	2205.855		18.0	521	P	NA	III	2208.75J	2208.072	240		516	
NI	II	2206.554	2205.866	80		835		CR	II	2208.77	2208.08	3		340	
CO	II	2206.556	2205.868	8	10.	825		AR	II	2208.832	2208.141	10		506	
NE	III	2206.64	2205.95	100		1031		CR	II	2208.96	2208.27	2		340	
AS	I	2206.66	2205.97	15	18.	480		KR	II	2209.092	2208.405	10		509	
V	III	2206.77	2206.08	3		325		FE	II	2209.096	2208.407	15	367.	896	
FE	I	2206.771	2206.083	5		896	M	CO	I	2209.199	2208.508	12	20.	603	
N	II	2206.776	2206.088	160	15.	200		CA	II	2209.299	2208.611	25	8.	186	
FE	II	2206.838	2206.150	8	367.	896		NI	I	2209.38	2208.69	00		602	
CO	III	2206.864	2206.176	4	22.	825		CR	III	2209.390	2208.703	400	58.	893	
V	III	2206.93	2206.27	10	12.	791		FE	I	2209.403	2208.714	1	20.	378	
NI	II	2207.009	2206.321	5		835		CR	I	2209.45	2208.76	5	42.	341	
MN	I	2207.033	2206.343	2		148		MN	I	2209.497	2208.806	140		148	
KR	II	2207.050	2206.362	10		509		FE	III	2209.54	2208.85	250	110.	188	
P	IV	2207.190	2206.502	40		937		CO	II	2209.57	2208.88	3		825	
FE	II	2207.270	2206.582	20	134.	488		NI	I	2209.68	2208.99	00		602	
MN	II	2207.325	2206.637	10		328		FE	II	2209.723	2209.034	8	366.	896	
NI	II	2207.403	2206.715	620	13.	835	H	NI	II	2209.729	2209.040	1		835	
F	III	2207.473	2206.785	300		537		CO	II	2209.74	2209.05	2		825	
MN	II	2207.54	2206.85	10		328		NI	II	2209.800	2209.111	25		835	
NI	II	2207.649	2206.961	20		835		AL	IV	2209.83	2209.14	15		888	
NI	II	2207.669	2206.981	30		835		V	III	2209.88	2209.19	40	12.	791	
FE	I	2207.7567	2207.0684	4	19.	896		NI	II	2209.949	2209.260	50		835	
NI	II	2207.836	2207.148	1		835		NE	III	2210.04	2209.35	200		1031	
KR	II	2207.838	2207.150	1		509		CR	II	2210.06	2209.37	8		340	
NI	II	2207.951	2207.262	20		835		CR	II	2210.12	2209.43	10		340	
NE	III	2207.98	2207.29	160		1031		MN	III	2210.130	2209.442	0		802	
CR	III	2208.136	2207.448	150	47.	893		CO	II	2210.20	2209.51	10		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AL	III	2210.238	2209.508	5		826		CR	III	2211.911	2211.224	300		893	
FE	III	2210.430	2209.739	60	123.	188		FE	I	2211.925	2211.234	7	20.	605	
CU	II	2210.4945	2209.8056	200	134.	612		FE	II	2211.930	2211.243	120	305.	488	
NI	II	2210.690	2210.001	20		835		NI	I	2211.979	2211.292	10	16.	488	
MN	II	2210.72	2210.03	3		328		V	I	2212.041	2211.350	3	43.	1000	
V	II	2210.720	2210.029	10	208.	478		TI	I	2212.05	2211.36	10	18.	488	
AL	I	2210.749	2210.060	7	7.	198		V	II	2212.07	2211.38	2	208.	478	
FE	III	2210.764	2210.073	90	110.	188		CO	II	2212.109	2211.421	18	10.	825	
AL	I	2210.819	2210.130	G.	7.	198		CR	III	2212.136	2211.448	200	47.	893	
ZN	II	2210.803	2210.176	60		154		CL	VII	2212.2	2211.5			92	
NI	II	2210.927	2210.238	6		835		NI	II	2212.319	2211.630	25		835	
CU	II	2210.9571	2210.2681	750	52.	612		CL	II	2212.335	2211.645	22		613	
V	II	2210.996	2210.305	8.	28.	478		KR	II	2212.407	2211.719	60		509	
AR	II	2211.0061	2210.3171	20		867		MN	I	2212.411	2211.720	8		148	
P	II	2211.03	2210.34	25		496		SI	I	2212.4334	2211.7441	110	3.	608	
CR	I	2211.07	2210.38	7	42.	341		CR	II	2212.54	2211.85	20	20.	340	
NI	II	2211.071	2210.382	180.	13.	835	H	NE	III	2212.54	2211.85	200		1031	
ZN	III	2211.128	2210.441	3		162		MN	III	2212.638	2211.949	400		301	
MN	I	2211.273	2210.582	8		148		MN	I	2212.747	2212.055	15		148	
MN	II	2211.28	2210.59	2		328		AR	II	2212.783	2212.094	5		506	
NE	II	2211.291	2210.602	5		563		NI	II	2212.799	2212.109	120		835	
FE	I	2211.3778	2210.6887	8	18.	896		NI	I	2212.837	2212.149	10	15.	488	
V	I	2211.569	2210.878	5		1000		FE	II	2212.84	2212.15	0		645	
AR	II	2211.572	2210.883	30		506		AL	IV	2212.90	2212.21	2		888	
CO	I	2211.58	2210.89	2		603		CR	II	2212.90	2212.21	15	20.	340	
SI	I	2211.5830	2210.8940	115	3.	608		CO	I	2212.92	2212.23	15		603	
CR	III	2211.61	2210.92	1		490		CL	II	2212.948	2212.259	51		613	
FE	II	2211.639	2210.952	50	118.	488		CR	II	2212.99	2212.30	3		340	
FE	II	2211.639	2210.952	50	134.	488		NA	III	2213.041	2212.353	270		516	
MN	III	2211.64	2210.95	2		301		CO	I	2213.045	2212.354	9	18.	603	
NI	I	2211.72	2211.03	15	34.	488		FE	II	2213.073	2212.385	4		645	
CO	II	2211.76	2211.07	5		825		ZN	II	2213.090	2212.402	3		457	
F	IV	2211.76	2211.07	4		173		MN	III	2213.115	2212.425	600	16.	301	
NI	II	2211.786	2211.097	80	52.	835	H	MN	III	2213.310	2212.620	10		301	
FE	II	2211.799	2211.112	50	289.	488	H	NE	III	2213.32	2212.63	100		1031	
FE	II	2211.799	2211.112	50	168.	488	H	NI	II	2213.362	2212.673	P		835	
FE	VI	2211.80	2211.11			228	F	CU	II	2213.4371	2212.7476	75	166.	612	
V	II	2211.85	2211.16	2		478		NI	II	2213.562	2212.872	20		835	
MN	II	2211.87	2211.18	15		329		NI	II	2213.606	2212.917	40		835	
AL	IV	2211.90	2211.21	3		888		KR	II	2213.651	2212.963	60		509	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
NI	II	2213.756	2213.066	12		835		CR	II	2215.99	2215.30	5	12.	340	
NI	II	2213.845	2213.155	50		835		ZN	III	2216.234	2215.545	1		162	
CO	II	2213.87	2213.18	10		825		CU	I	2216.346	2215.654	320	22.	672	
NI	II	2213.886	2213.196	120	30.	835	H	FE	II	2216.393	2215.702	4	371.	895	
AL	III	2214.153	2213.428	2		826		V	II	2216.478	2215.786	9	208.	478	
AL	III	2214.153	2213.460	20		826		CR	III	2216.538	2215.849	300	58.	893	
NI	II	2214.179	2213.489	1		835		V	III	2216.55	2215.86	200	12.	791	
CR	II	2214.25	2213.56	10	21.	340		KR	II	2216.566	2215.877	4		509	
FE	II	2214.345	2213.655	20	168.	896	H	V	II	2216.746	2216.054	3	28.	1000	
CR	II	2214.37	2213.68	30	247.	340		NE	III	2216.76	2216.07	300		1031	
V	I	2214.384	2213.692	10	40.	1000		FE	II	2216.791	2216.102	M		645	
FE	II	2214.41	2213.72	D	168.	488		AR	II	2216.880	2216.190	40		506	
NE	III	2214.45	2213.76	240		1031		CR	III	2216.922	2216.233	120.		893	
CO	I	2214.511	2213.819	7		603		V	I	2216.938	2216.245	4	39.	1000	
MN	I	2214.547	2213.855	170		148		CR	II	2217.01	2216.32	4		340	
CO	I	2214.55	2213.86	4	19.	603		CO	II	2217.17	2216.48	25		825	
NI	I	2214.56	2213.87	00		602		NI	II	2217.172	2216.482	800	12.	835	H
FE	II	2214.729	2214.036	8	368.	896		NA	II	2217.25	2216.56	7		152	
KR	II	2214.775	2214.087	1		509		V	I	2217.358	2216.666	10		1000	
MN	III	2214.798	2214.108	10		301		SI	I	2217.3593	2216.6688	120	3.	608	
O	VIII	2214.8	2214.1			309		CR	III	2217.547	2216.858	120		893	
AR	II	2214.812	2214.147	10		506		FE	II	2217.569	2216.880	2		645	
MN	I	2214.82	2214.10	10		148		FE	II	2217.737	2217.048	1	168.	488	
NA	III	2214.898	2214.210	300		516		F	III	2217.863	2217.172	450		537	
CR	I	2215.00	2214.31	8	42.	341		MN	II	2217.88	2217.19	1		328	
CA	VI	2215.2	2214.5			726	F	CO	II	2217.965	2217.274	10	9.	825	
CU	I	2215.273	2214.581	400	22.	672		V	II	2218.01	2217.32	8	28.	478	
FE	III	2215.308	2214.616	40	69.	188		NA	III	2218.03	2217.34	180		516	
HE	II	2215.361	2214.671			309		MN	II	2218.05	2217.36	2		328	
TI	V	2215.430	2214.741	60		727		V	III	2218.06	2217.37	150	12.	791	
NE	III	2215.46	2214.77	80		1031		CO	II	2218.10	2217.41	2		825	
CO	II	2215.472	2214.782	12	11.	825		FE	III	2218.177	2217.485	60		188	
NI	II	2215.585	2214.895	20		835		CR	III	2218.208	2217.519	570		893	
FE	II	2215.767	2215.077	8	369.	896		FE	I	2218.270	2217.578	1	114.	605	
CR	II	2215.77	2215.08	20	247.	340		NI	II	2218.385	2217.695	40		835	
MN	I	2215.777	2215.086	3		148		ZN	III	2218.422	2217.733	2		162	
CU	II	2215.7960	2215.1060	250	168.	612		FE	I	2218.437	2217.744	1	20.	605	
MN	III	2215.902	2215.212	800	16.	301		CR	III	2218.443	2217.754	300	47.	893	
CR	III	2215.918	2215.229	150		893		CU	III	2218.459	2217.768	3		724	
NI	II	2215.965	2215.275	6		835		NI	I	2218.46	2217.77	15	33.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CO	II	2218.49	2217.80	3		825		FE	II	2220.587	2219.896	10	168.	896	H
V	III	2218.49	2217.80	125	12.	791		CO	II	2220.62	2219.93	3		825	
CR	II	2218.58	2217.89	7	51.	340		NI	II	2220.627	2219.936	2		835	
NI	II	2218.736	2218.045	5		835		AR	II	2220.6534	2219.9624	60		867	
SI	I	2218.7477	2218.0569	120	3.	608		CR	II	2220.70	2220.01	2	21.	340	
ZN	IV	2218.767	2218.039	10		154		CO	II	2220.786	2220.095	10	22.	825	
CU	II	2218.7988	2218.1081	750	13.	612		FE	VI	2220.79	2220.10			228	F
NI	II	2218.802	2218.111	120		835		V	II	2220.907	2220.214	100	28	478	
CO	II	2218.82	2218.13	3		825		B	II	2220.989	2220.298	150		532	
CR	III	2218.836	2218.146	90	60.	893		CR	II	2221.00	2220.31	1		340	
NI	II	2218.898	2218.207	1		835		AR	II	2221.038	2220.347	20		506	
V	I	2218.931	2218.238	25	39.	1000		GE	I	2221.0658	2220.3747	40		7	
FE	II	2218.952	2218.262	12	367.	896		FE	II	2221.072	2220.381	20	118.	896	H
V	III	2219.04	2218.35	150	12.	791		NI	II	2221.093	2220.402	280	28.	835	H
CR	II	2219.05	2218.36	6	209.	340		CR	I	2221.11	2220.42	10	42.	341	
AR	II	2219.066	2218.375	10		506		V	I	2221.143	2220.450	3	40.	1000	
TI	I	2219.07	2218.38	50	18.	488		FE	II	2221.143	2220.453	60	371.	488	
N	II	2219.11	2218.41	1	14.1	200		MN	III	2221.237	2220.546	900	16.	301	
N	II	2219.164	2218.474		18.0	521		FE	III	2221.304	2220.611	25	69.	188	
CU	II	2219.2037	2218.5130	150	137.	612		MN	III	2221.435	2220.744	20	16.	301	
NI	II	2219.264	2218.573	2		835		NE	IV	2221.50	2220.81	10		1022	
CR	III	2219.380	2218.690	350		893		N	II	2221.540	2220.850		18.0	521	P
AS	II	2219.474	2218.783	5		425		FE	I	2221.605	2220.912	2	19.	605	
AR	II	2219.496	2218.805	40		506		AS	II	2221.740	2221.048	0		425	
CO	I	2219.506	2218.813	10	73.	603		NI	II	2221.753	2221.062	220		835	
MN	I	2219.596	2218.903	3		148		FE	II	2221.858	2221.167	8	168.	896	H
SI	I	2219.6056	2218.9148	50	3.	608		V	III	2221.93	2221.24	5		791	
CR	II	2219.74	2219.05	2		340		CO	II	2221.97	2221.28	3		825	
CO	II	2219.76	2219.07	10		825		FE	III	2222.030	2221.337	10		108	
NI	II	2219.807	2219.116	20		835		AR	II	2222.043	2221.352	10		506	
CO	I	2219.847	2219.154	9	16.	603		CO	II	2222.23	2221.54	3		825	
CR	II	2219.86	2219.17	1		340		CU	II	2222.341	2221.650	5		612	
NI	II	2219.937	2219.246	1		835		NI	II	2222.450	2221.759	25		835	
V	II	2220.101	2219.408	3	208.	478		CO	II	2222.50	2221.81	6		825	
NI	II	2220.163	2219.472	140		835		FE	III	2222.523	2221.830	250	69.	188	
CR	III	2220.276	2219.586	300	47.	893		KR	II	2222.525	2221.834	4		509	
V	I	2220.345	2219.652	3	41.	1000		MN	I	2222.530	2221.837	220		148	
TI	I	2220.44	2219.75	50	18.	488		CR	II	2222.55	2221.86	12	270.	340	
MN	III	2220.493	2219.802	20		301		NI	I	2222.630	2221.939	25	15.	488	
CA	III	2220.542	2219.851	300		85		CR	III	2222.665	2221.974	60		893	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
SI	III	2222.71	2222.01	7	85.	768		CR	II	2225.56	2224.87	1	209.	340	
FE	I	2222.751	2222.059	2	114.	378		V	I	2225.713	2225.029	8	39.	1000	
AR	II	2222.758	2222.066	30	.	506		TI	I	2225.80	2225.11	80		488	N
SC	IV	2222.907	2222.216	870		720		KR	II	2225.879	2225.187	25		509	
NI	II	2222.928	2222.236	110		835		SI	II	2225.957	2225.267	1	15.02	678	
CO	II	2222.94	2222.25	4		825		NA	III	2225.972	2225.280	150		516	
N	II	2223.03	2222.34		18.0	521	P	NI	I	2226.04	2225.35	5	16.	488	
AR	II	2223.100	2222.408	5	.	506		CO	I	2226.044	2225.350	12	19.	603	
FE	II	2223.137	2222.446	0	168.	468		MN	III	2226.063	2225.371	10		301	
P	I	2223.26	2222.57	10	3.	496		V	I	2226.116	2225.422	30	38.	1000	
MN	II	2223.265	2222.573	10		328		CR	II	2226.13	2225.44	3	270.	340	
FE	II	2223.370	2222.679	10	369.	488		F	II	2226.2	2225.5			108	F
GE	I	2223.43	2222.74	20		7		CA	III	2226.251	2225.559	25		85	
FE	I	2223.45	2222.75	7	113.	605		CO	II	2226.28	2225.59	5		825	
V	I	2223.528	2222.834	15	38.	1000		TI	III	2226.28	2225.59	25		227	
NI	II	2223.649	2222.957	300	12.	835	H	AR	II	2226.354	2225.662	60		506	
CO	II	2223.65	2222.96	9		825		CU	I	2226.391	2225.697	460	2.	672	
V	I	2223.708	2223.014	20	39.	1000		NI	II	2226.460	2225.768	50		835	
TI	I	2223.88	2223.19	70	18.	488		V	I	2226.481	2225.787	10	39.	1000	
P	I	2224.04	2223.35	25	3.	496		CO	I	2226.542	2225.848	5	120.	603	
NI	II	2224.147	2223.455	180		835		FE	II	2226.555	2225.859	2		645	
FE	II	2224.179	2223.487	8	168.	896	H	CR	II	2226.62	2225.93	1	50.	340	
NI	II	2224.311	2223.619	15		835		NA	III	2226.620	2225.928	450		516	
FE	II	2224.557	2223.866	20	368.	488		KR	II	2226.667	2225.975	1		509	
CO	I	2224.67	2223.97	0		603		CA	VII	2226.8	2226.1			726	F
CO	II	2224.78	2224.09	10		825		CR	II	2226.96	2226.27	15	35.	340	
NE	V	2224.81	2224.12	10		1024		NI	II	2227.021	2226.329	100	12.	835	H
NI	II	2225.019	2224.327	5		835		NE	II	2227.022	2226.330	10		563	
CO	II	2225.04	2224.35	2		825		CR	II	2227.04	2226.35	15	35.	340	
NI	II	2225.047	2224.355	10	21.	835	H	CR	II	2227.16	2226.47	7	12.	340	
NI	II	2225.106	2224.414	15		835	H	MN	III	2227.32	2226.61	3		301	
CO	II	2225.18	2224.49	1		825		CR	III	2227.368	2226.676	1000	39.	893	
NI	II	2225.196	2224.504	5	29.	835		TI	I	2227.46	2226.77	60	18.	488	
AR	II	2225.242	2224.550	10	.	506		CU	II	2227.4730	2226.7805	150	134.	612	
MN	III	2225.377	2224.684	2		802		NI	II	2227.558	2226.866	5		835	
CU	II	2225.3834	2224.6913	100	178.	612		MN	III	2227.621	2226.928	10		301	
CR	III	2225.446	2224.754	200	58.	893		CR	III	2227.706	2227.014	150	58.	893	
V	II	2225.539	2224.845	1		478		TI	II	2227.83	2227.14	20		601	
NI	II	2225.556	2224.864	140	12.	835	H	NI	II	2227.879	2227.186	40		835	
CO	II	2225.56	2224.87	5		825		AR	II	2227.991	2227.298	50		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
V	I	2228.093	2227.398	3		1000		F	V	2229.88	2229.18	4			176
FE	II	2228.099	2227.407	1	168.	488		TI	II	2229.94	2229.25	10			601
NE	V	2228.11	2227.42	120		1024		FE	III	2229.962	2229.267	250	128.		188
MN	III	2228.12	2227.42	1000	16.	301		ZN	III	2230.036	2229.345	40			162
FE	II	2228.162	2227.469	40	369.	488		KR	II	2230.044	2229.353	1			509
CO	II	2228.28	2227.59	6		825		S	III	2230.07	2229.37	400			285
FE	II	2228.290	2227.597	1	168.	488		V	III	2230.24	2229.55	75			791
CO	I	2228.361	2227.666	12	22.	603		CR	III	2230.321	2229.630	200			893
NI	II	2228.365	2227.672	15		835		AR	II	2230.341	2229.648	80			506
CU	I	2228.469	2227.775	400	21.	672		O	II	2230.35	2229.66	1			168
CO	II	2228.53	2227.84	1		825		TI	I	2230.38	2229.67	70			488
FE	III	2228.543	2227.848	120	69.	188		CO	I	2230.429	2229.734	10	68.		603
CO	I	2228.543	2227.853	10	16.	603		V	I	2230.429	2229.734	25	39.		1000
CR	II	2228.57	2227.88	10	20.	340		NI	II	2230.469	2229.776	50	51.		835
MN	III	2228.60	2227.90	1		301		NE	II	2230.507	2229.814	10			563
TI	I	2228.60	2227.91	10	17.	488		CU	II	2230.5467	2229.8536	150	135.		612
KR	II	2228.618	2227.925	120		509		MN	II	2230.63	2229.94	10			328
O	III	2228.84	2228.15	25		168		MN	II	2230.68	2229.99	10			328
FE	I	2228.8643	2228.1715	12	18.	896		V	II	2230.680	2229.985	80	28.		478
CR	II	2228.87	2228.18	8	20.	340		N	II	2230.725	2230.034		30.		521
CR	I	2228.91	2228.22	18	42.	341		CO	I	2230.76	2230.07	8			603
CR	II	2228.95	2228.26	12	20.	340		CU	I	2230.779	2230.084	500	21.		672
CO	I	2229.029	2228.334	4		603		MN	IV	2230.823	2230.128	20			799
CR	II	2229.03	2228.34	15	283.	340		CU	II	2230.8378	2230.1446	50	134.		612
MN	III	2229.137	2228.444	20	16.	301		TI	I	2230.87	2230.18	70	17.		488
FE	I	2229.184	2228.489	1	19.	605		CR	II	2230.88	2230.18	1			340
NA	II	2229.22	2228.53	80		152		NI	II	2231.001	2230.308	2			835
AS	I	2229.36	2228.66	20	18.	480		AR	II	2231.0130	2230.3197	30			887
CR	III	2229.445	2228.754	350		893		NA	III	2231.021	2230.330	900			516
FE	II	2229.452	2228.761	300	386.	488		V	I	2231.057	2230.362	20	38.		1000
CO	I	2229.501	2228.806	12	19.	603		NI	II	2231.061	2230.368	2			835
CR	II	2229.53	2228.82	5	270.	340		FE	III	2231.066	2230.373	20			288
V	I	2229.530	2228.835	15	41.	1000		CU	II	2231.0919	2230.3986	25	132.		612
TI	II	2229.54	2228.85	10		601		TI	I	2231.17	2230.48	70	18.		488
CU	II	2229.5609	2228.8680	350	13.	612		CO	II	2231.21	2230.52	10			825
FE	III	2229.576	2228.881	40	122.	188		CR	II	2231.26	2230.57	2	12.		340
AR	II	2229.719	2229.024	5		506		CR	III	2231.277	2230.586	150			893
FE	I	2229.7658	2229.0728	2	18.	896		MN	III	2231.32	2230.62	1			301
KR	II	2229.791	2229.082	1		509		FE	II	2231.36	2230.67	0			645
AL	IV	2229.82	2229.13	30		88P		N	II	2231.420	2230.729		16.0		521

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
TI	II	2231.64	2230.95	10		601		MN	III	2234.008	2233.312	2		802	
CU	II	2231.6453	2230.9519	100	167.	612		AR	II	2234.172	2233.478	40		506	
NI	I	2231.646	2230.955	15	36.	488		FE	III	2234.244	2233.548	150		188	
AR	II	2231.717	2231.024	10	.	506		CR	III	2234.274	2233.582	40		893	
CR	II	2231.72	2231.02	12	78.	340		CA	III	2234.308	2233.614	60		85	
TI	II	2231.73	2231.04	20		601		FE	III	2234.350	2233.654	90	128.	188	
FE	I	2231.783	2231.090	2	112.	378		N	II	2234.450	2233.758		16.0	521	P
NE	II	2231.810	2231.117	10	.	563		CO	I	2234.455	2233.759	10	21.	603	
CL	III	2231.85	2231.16	300	15.	38		CR	III	2234.478	2233.786	700	45.	893	
FE	I	2231.9065	2231.2128	15	18.	896		TI	I	2234.48	2233.79	80	17.	488	
SE	III	2232.08	2231.39	1		587		NI	II	2234.503	2233.809	20		835	
MN	III	2232.10	2231.41	2		301		FE	II	2234.609	2233.917	5	118.	488	H
V	I	2232.107	2231.412	30	42.	489		CO	II	2234.61	2233.93	2		825	
AR	II	2232.116	2231.423	50	.	506		MN	III	2234.73	2234.03	2	16.	301	
CA	III	2232.129	2231.436	200		85		B	III	2234.782	2234.088	65		531	
CR	II	2232.15	2231.45	15	283.	340		MN	III	2234.88	2234.19	2		301	
FE	II	2232.204	2231.512	100	368.	488		CR	II	2234.92	2234.22	5	20.	340	
CL	II	2232.2759	2231.5824	75	133.	612		KR	II	2235.087	2234.394	40		509	
CL	IV	2232.28	2231.59	41		713		FE	I	2235.128	2234.432	2	114.	605	
N	III	2232.34	2231.65	1	24.0	521		FE	III	2235.17	2234.47	20		288	
MI	II	2232.35	2231.66	10		328		CR	II	2235.20	2234.50	7	20.	340	
FI	III	2232.365	2231.670	40	139.	188		CR	II	2235.28	2234.58	12	20.	340	
CC	I	2232.444	2231.749	6		603		B	III	2235.287	2234.593	110		531	
CI	III	2232.480	2231.788	500		893		CR	III	2235.287	2234.594	120		893	
NI	II	2232.484	2231.791	40	.	563		AR	II	2235.3666	2234.6724	60		867	
CC	II	2232.758	2232.064	18	10.	825	H	V	I	2235.376	2234.680	10	38.	1000	
NA	III	2232.881	2232.189	480		516		CO	I	2235.406	2234.710	12	67.	603	
V	I	2232.948	2232.252	8	39.	1000		NE	II	2235.409	2234.715	5		563	
GE	I	2232.98	2232.28	0		7		CO	II	2235.50	2234.80	50		825	
NI	V	2233.10	2232.41	150		1022		P	I	2235.65	2234.95	20	3.	496	
FL	III	2233.126	2232.430	250	64.	188		CR	III	2235.681	2234.988	10		893	
CO	I	2233.156	2232.460	8	20.	603		CO	II	2235.81	2235.11	5		825	
CO	II	2233.156	2232.462	15		825		N	II	2235.902	2235.208	70	18.0	200	
FE	III	2233.386	2232.690	250	139.	188		AS	II	2236.069	2235.375	0		425	
V	III	2233.46	2232.77	350	12.	791		N	II	2236.089	2235.396		18.0	521	P
CO	I	2233.57	2232.88	4		603		FE	III	2236.395	2235.699	90	69.	188	
O	II	2233.59	2232.89	1		168	F	P	I	2236.43	2235.73	50	3.	496	
CO	I	2233.795	2233.099	9		603		NI	II	2236.453	2235.758	8		835	
FE	III	2233.868	2233.172	40	122.	188		AR	II	2236.4535	2235.7591	30		867	
S		2234.	2233.			107	N	NE	II	2236.562	2235.868	5		563	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
AR	II	2236.598	2235.904	20		506		NI	II	2238.728	2238.033	2		835	
FE	III	2236.604	2235.908	250	139.	188		FE	III	2238.852	2238.155	250	139.	188	
CR	III	2236.605	2235.912	800	39.	893		TI	I	2238.89	2238.20	60		488	N
NI	II	2236.758	2236.063	3	53.	835		FE	I	2238.956	2238.259	2	18.	605	
CO	II	2236.87	2236.17	2		825		ZN	III	2239.027	2238.333	3		162	
NE	II	2236.945	2236.251	30		563		TI	II	2239.08	2238.39	10		601	
CU	I	2236.974	2236.278	300	24.	672		NI	II	2239.147	2238.452	20		835	
NE	V	2236.99	2236.29	50		1024		CU	I	2239.151	2238.454	330	25.	672	
MN	IV	2237.076	2236.382	40		799		NI	II	2239.267	2238.572	15		835	
CR	III	2237.122	2236.429	40		893		TI	I	2239.42	2238.73	80	17.	488	
CR	II	2237.17	2236.47	3		340		CR	II	2239.57	2238.87	1	12.	340	
MN	III	2237.18	2236.48	1		301		N	II	2239.669	2238.974	70	18.0	200	
AR	II	2237.227	2236.527	30		506		FE	II	2239.741	2239.047	250	365.	488	
NI	II	2237.261	2236.566	8		835		CR	II	2239.94	2239.24	8	20.	340	
FE	II	2237.373	2236.680	0	4.	488	H	MN	IV	2239.968	2239.272	20		799	
V	III	2237.42	2236.73	15		325		P	III	2239.985	2239.290	4		936	
CO	I	2237.493	2236.796	15	19.	603		CO	I	2239.99	2239.30	1		603	
S	II	2237.57	2236.87	500		285		MN	III	2240.026	2239.331	5		301	
TI	III	2237.59	2236.90	15		227		CU	I	2240.03	2239.33	2		672	
NI	II	2237.679	2236.984	2		835		CR	III	2240.154	2239.460	250		893	
CO	II	2237.75	2237.05	5		825		NA	III	2240.179	2239.485	390		516	
CO	I	2237.822	2237.125	10	70.	603		CR	II	2240.21	2239.51	4	20.	340	
NI	II	2237.856	2237.161	1		835		AR	II	2240.309	2239.615	5		506	
N	III	2237.90	2237.21	1	24.0	521		TI	III	2240.31	2239.62	3		227	
V	I	2237.924	2237.228	50	39.	1000		FE	II	2240.332	2239.638	0	334.	488	
CU	I	2238.04	2237.34	5		672		CO	II	2240.49	2239.80	4		825	
AR	II	2238.080	2237.385	10		506		AR	II	2240.601	2239.906	10		506	
CO	II	2238.13	2237.44	2		825		KR	II	2240.630	2239.936	1		509	
CR	III	2238.265	2237.571	650	45.	893		NI	II	2240.695	2239.999	20		835	
FE	II	2238.271	2237.577	200	365.	488		CO	II	2240.83	2240.13	2		825	
AR	II	2238.4144	2237.7195	20		867		NI	I	2240.880	2240.185	15		835	
TI	III	2238.468	2237.773	230		227		V	I	2240.999	2240.302	2		1000	
NI	II	2238.498	2237.803	5		835		CU	I	2241.10	2240.40	2		672	
FE	I	2238.511	2237.814	2	114.	605		V	III	2241.13	2240.44	30		791	
BR	II	2238.535	2237.841	10		606		BR	II	2241.147	2240.453	50		606	
NI	II	2238.571	2237.876	20		835		AL	IV	2241.16	2240.47	50		888	
FE	II	2238.588	2237.894	1	334.	488		AL	IV	2241.257	2240.563	300		888	
FE	II	2238.591	2237.894	0		645		FE	I	2241.324	2240.627	4	112.	605	
MN	III	2238.72	2238.03	10	16.	301		CO	I	2241.44	2240.74	6		603	
AR	II	2238.723	2238.028	10		506		AR	II	2241.724	2241.028	60		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
C	II	2241.75	2241.05	4	44.	287		CU	II	2243.7905	2243.0945	25		612	
V	I	2241.911	2241.213	7	39.	1000		FE	III	2243.911	2243.215	40		268	
CO	II	2241.97	2241.27	4		825		NI	I	2243.92	2243.22	00	10.	488	
FE	VI	2241.99	2241.30			228	F	CO	I	2243.951	2243.254	10	19.	603	
CR	II	2242.00	2241.30	15	50.	340		V	I	2243.956	2243.258	6		1000	
CR	III	2242.010	2241.315	120		893		CR	II	2243.98	2243.28	40	77.	340	
V	III	2242.08	2241.39	125		791		FE	III	2244.103	2243.405	150	64.	188	
FE	II	2242.121	2241.426	200	365.	488		V	II	2244.166	2243.468	4		478	
CR	II	2242.17	2241.47	3	78.	340		CR	II	2244.20	2243.50	8		340	
FE	III	2242.24	2241.54	350	109.	188		FE	II	2244.273	2243.578	0	118.	488	H
NI	II	2242.267	2241.571	140		835		CR	II	2244.32	2243.62	50	77.	340	
CO	II	2242.30	2241.60	5		825		AR	II	2244.3558	2243.6597	50		867	
CO	I	2242.35	2241.65	9		603		NI	II	2244.411	2243.715	10		835	
CR	II	2242.39	2241.69	15	50.	340		V	I	2244.440	2243.742	8	37.	1000	
CR	II	2242.50	2241.80	30	78.	340		FE	III	2244.543	2243.845	40		188	
V	I	2242.544	2241.846	40	38.	1000		CO	II	2244.59	2243.90	4		825	
FE	I	2242.55	2241.85	1	75.	605		FE	I	2244.609	2243.911	1	16.	605	
AR	II	2242.554	2241.858	20		506		AR	II	2244.776	2244.080	10		506	
NI	II	2242.727	2242.031	100		835		CR	III	2244.805	2244.109	700	39.	893	
C	II	2242.80	2242.10	4	44.	287		CO	I	2244.82	2244.12			603	
NI	II	2242.837	2242.141	2	28.	835		MN	III	2244.832	2244.136	2		301	
CU	II	2242.8389	2242.1431	25		612		FE	II	2244.912	2244.216	80	365.	488	
CA	VI	2242.9	2242.2			726	F	FE	I	2244.940	2244.244	60		896	M
NE	II	2242.927	2242.232	5		553		CU	I	2244.963	2244.265	480	2.	672	
AR	III	2242.98	2242.29	60	10.	488		CO	II	2245.09	2244.39	2		825	
P	IV	2243.138	2242.442	25		937		CO	II	2245.15	2244.45	2		825	
GE	I	2243.17	2242.47	20		7		NI	I	2245.160	2244.464	5	34.	488	
P	I	2243.23	2242.53	25	3.	496		NI	I	2245.25	2244.55	15		488	N
FE	I	2243.2677	2242.5718	15	18.	389		CU	III	2245.377	2244.680	1		724	
F	II	2243.3	2242.6			108	F	TI	I	2245.39	2244.69	70	17.	488	
V	I	2243.312	2242.614	5		1000		CR	III	2245.463	2244.767	200		893	
CU	II	2243.3143	2242.6184	900	52.	612		CR	II	2245.53	2244.83	10	35.	340	
MN	III	2243.355	2242.655	0		802		NI	II	2245.555	2244.858	60		835	
NI	II	2243.376	2242.680	220		835		NI	II	2245.574	2244.878	30		835	
CU	II	2243.4115	2242.7156	2		612		MN	III	2245.585	2244.889	3		301	
V	III	2243.52	2242.82	5		325		CR	II	2245.60	2244.90	20	35.	340	
CR	III	2243.587	2242.892	60		893		AR	II	2245.8121	2245.1157	20		867	
CO	II	2243.60	2242.90	4		825		CO	II	2245.823	2245.118	35	10.	825	H
NI	I	2243.60	2242.90	00		602		FE	I	2245.84	2245.14	1	75.	605	
BR	II	2243.710	2243.015	150		606		CR	II	2246.03	2245.33	7	150.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
AR	II	2246.106	2245.410	20		506		MN	III	2248.734	2248.037	2		301	
N	II	2246.122	2245.426		16.0	521	P	CO	II	2248.88	2248.18	3		825	
CO	I	2246.160	2245.463	5	19.	603		MN	IV	2248.904	2248.205	0		799	
NE	V	2246.18	2245.48	100		1024		CR	II	2249.00	2248.30	50	49.	340	
FE	II	2246.201	2245.505	450	365.	488		NI	II	2249.066	2248.369	15		835	
FE	I	2246.275	2245.578	25		896	M	V	II	2249.15	2248.45	1		478	
CL	II	2246.283	2245.587	6		613		CU	III	2249.188	2248.491	6		724	
NI	II	2246.292	2245.596	20		835		CR	II	2249.26	2248.56	40	49.	340	
CO	I	2246.299	2245.600	10		603		CO	II	2249.355	2248.658	5	9.	825	
FE	I	2246.3494	2245.6527	10	18.	896		CO	I	2249.50	2248.80	1		603	
V	I	2246.454	2245.756	30	37.	1000		FE	I	2249.5574	2248.8602	20	70.	896	
FE	III	2246.474	2245.776	40	128.	188		V	III	2249.60	2248.90	40		791	
CO	II	2246.50	2245.81	2		825		V	II	2249.612	2248.913	4	16.	478	
BR	II	2246.635	2245.939	150		606		N	III	2249.63	2248.93	60	23.	521	
AR	II	2246.671	2245.975	30		506		CR	III	2249.647	2248.950	250	45.	893	
MN	III	2246.75	2246.05	1	16.	301	N	CU	II	2249.6645	2248.9673	150	154.	612	
TI	I	2246.84	2246.14	40		488		CO	I	2249.679	2248.981	5	19.	603	
CO	II	2246.85	2246.15	3		825		NI	II	2249.724	2249.027	0		835	
V	I	2246.903	2246.204	1		1000		FE	II	2249.760	2249.063	300	365.	488	
V	II	2247.030	2246.332	3	16.	478		FE	II	2249.760	2249.063	300	365.	488	
CO	I	2247.297	2246.599	25	18.	603		FE	II	2249.878	2249.181	250	365.	488	H
NI	II	2247.308	2246.611	2		835		FE	II	2249.878	2249.181	250	5.	488	H
MN	III	2247.342	2246.645	1		301		LI	II	2249.908	2249.211	I		307	
V	II	2247.35	2246.65	1	16.	478		CR	II	2250.02	2249.32	2	49.	340	
NA	III	2247.403	2246.707	600		516		AR	II	2250.044	2249.347	30		506	
NE	VI	2247.6	2246.9	155		885	M	NI	II	2250.069	2249.371	15		835	
CU	II	2247.6991	2247.0023	1000	13.	612	H	FE	III	2250.14	2249.45	1		288	
GE	I	2247.74	2247.04	20		7		NI	II	2250.141	2249.444	30		835	
NI	II	2247.925	2247.228	100	30.	835		FE	V	2250.33	2249.63			229	F
P	IV	2247.961	2247.264	10		937		AR	II	2250.355	2249.658	10		506	
FE	I	2248.160	2247.461	1	72.	605		CR	II	2250.48	2249.78	30	49.	340	
CU	I	2248.196	2247.503	2		672		CR	II	2250.61	2249.91	8	35.	340	
V	I	2248.219	2247.520	9	37.	1000		MN	I	2250.610	2249.911	5		148	
N	III	2248.35	2247.65	10	23.	521		FE	III	2250.67	2249.97	70		288	
CR	III	2248.380	2247.683	500		893		CR	II	2250.68	2249.98	20	49.	340	
FE	II	2248.389	2247.692	350	365.	488		CO	II	2250.69	2249.99	20		825	
NE	VI	2248.46	2247.76	10		71		MN	III	2250.758	2250.060	5		301	
CO	I	2248.57	2247.86	4		603		TI	II	2250.79	2250.09	20		601	
CR	II	2248.61	2247.91	18	49.	340		FE	II	2250.868	2250.171	1	4.	488	H
N	III	2248.65	2247.95	90	23.	521		N	II	2250.980	2250.283		16.0	521	P



SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
S	2251.	2250.			107	N	AR	II	2252.9443	2252.2463	60		867
CR	III	2251.042	2250.345	10			FE	III	2252.968	2252.268	60	64.	188
V	II	2251.081	2250.382	3	16.		CR	II	2253.07	2252.37	4	150.	340
CO	II	2251.09	2250.39	3			CO	II	2253.08	2252.38	3		825
FE	I	2251.134	2250.437	50			GE	I	2253.13	2252.43	10		7
FE	III	2251.154	2250.456	70			CA	III	2253.144	2252.446	120		85
NI	II	2251.185	2250.488	10			FE	III	2253.163	2252.463	40	64.	188
V	II	2251.190	2250.490	5	16.		AR	II	2253.22	2252.52	5		506
CO	I	2251.196	2250.496	10	117.		V	I	2253.381	2252.681	5	37.	1000
NI	II	2251.206	2250.508	20			HE	II	2253.387	2252.689			309
V	I	2251.371	2250.670	30	37.	1000	NE	II	2253.399	2252.701	5		563
CO	II	2251.45	2250.75	10		825	CO	I	2253.412	2252.712	10	20.	603
NI	II	2251.453	2250.755	10		835	F	V	2253.42	2252.72	10		176
FE	I	2251.4880	2250.7904	50	16.	896	BR	II	2253.420	2252.723	0		606
V	II	2251.499	2250.800	5	16.	478	NE	II	2253.503	2252.805	50		563
ZN	III	2251.598	2250.902	0		162	CO	II	2253.52	2252.82	2	1.	825
NI	II	2251.618	2250.920	3		835	NI	II	2253.528	2252.830	140		835
FE	II	2251.633	2250.937	5	4.	488	AR	II	2253.536	2252.837	J		506
CL	II	2251.644	2250.946	105	9.	613	ZN	III	2253.553	2252.857	50		162
NI	II	2251.696	2250.998	3		835	KR	II	2253.569	2252.873	1		509
CR	III	2251.746	2251.050	200		893	O	III	2253.569	2252.873	1		1032
FE	III	2251.802	2251.104	5		288	ZN	IV	2253.570	2252.857	80		154
V	II	2251.814	2251.114	6	171.	478	V	II	2253.653	2252.953	7	16.	478
CO	II	2251.82	2251.12	8		825	CO	II	2253.70	2253.00	M		825
CR	III	2251.848	2251.152	250		893	CR	III	2253.710	2253.014	60		893
CO	II	2252.04	2251.34	4		825	CU	II	2253.731	2253.033	2		612
AR	II	2252.101	2251.403	20		506	CL	III	2253.77	2253.07	700	15.	38
CR	III	2252.161	2251.465	570	39.	893	S	III	2253.78	2253.08	200		285
NA	III	2252.172	2251.476	420		516	AS	IV	2253.81	2253.11	600		584
CL	II	2252.175	2251.477	100	9.	613	FE	II	2253.815	2253.119	5	4.	488
NI	I	2252.180	2251.484	15	33.	488	CL	II	2253.830	2253.132	105	9.	613
NI	II	2252.218	2251.520	30		835	NE	VI	2253.92	2253.22	90		71
V	II	2252.250	2251.500	7		478	TI	II	2253.96	2253.26	20		601
FE	II	2252.252	2251.556	1	5.	488	CR	III	2253.989	2253.293	40		893
FE	II	2252.527	2251.831	800	365.	488	CR	II	2253.99	2253.29	1		340
CO	I	2252.53	2251.83	8	14.	603	CO	II	2254.20	2253.50	12		825
CU	II	2252.5549	2251.8571	5		612	NI	I	2254.261	2253.565	5	34.	488
FE	I	2252.5717	2251.8739	60	18.	896	CO	I	2254.287	2253.587	3		603
CR	III	2252.671	2251.975	400	39.	893	NI	II	2254.377	2253.679	50	29.	835
V	III	2252.68	2251.99	15		325	FE	III	2254.412	2253.712	25		188

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	II	2254.433	2253.734	25		835		FE	I	2256.762	2256.063	3	75.	378	
CO	I	2254.476	2253.776	10	64.	603		MN	III	2256.827	2256.128	2		301	
NI	II	2254.546	2253.848	220	12.	835		NI	II	2256.836	2256.137	75	51.	835	
FE	II	2254.762	2254.066	80	365.	488		C	II	2256.88	2256.19	10	43.	287	
CO	II	2254.83	2254.13	1		825		NI	II	2256.978	2256.279	3		835	
NI	II	2254.956	2254.258	8		835		B	IV	2257.0	2256.2	10		221	
CR	III	2254.958	2254.261	4		893		FE	V	2257.02	2256.32			229	F
AR	II	2254.981	2254.283	50		506		CL	II	2257.045	2256.346	11		613	
FE	II	2255.098	2254.401	1	5.	488	H	CR	II	2257.08	2256.38	12	49.	340	
F	III	2255.17	2254.47	1		537		NE	II	2257.097	2256.398	5		563	
BR	II	2255.348	2254.651	10		606		AR	II	2257.244	2256.545	30		506	
NI	I	2255.507	2254.810	40	14.	488		CR	II	2257.26	2256.56	2	49.	340	
CO	VI	2255.52	2254.82	10		603		CO	I	2257.266	2256.565	10	67.	603	
CO	II	2255.53	2254.83	10		825		CR	III	2257.351	2256.654	570		893	
CO	II	2255.67	2254.97	10		825		NI	II	2257.407	2256.708	5		835	
CU	II	2255.6871	2254.9886	75		612		CO	II	2257.44	2256.74	35		825	
AR	II	2255.877	2255.178	10		506		FE	I	2257.450	2256.750	1	112.	605	
CA	III	2255.904	2255.205	150		85		C	II	2257.48	2256.79	1	43.	287	
C	II	2255.93	2255.23	1	43.	287		NE	II	2257.511	2256.812	20		563	
CU	I	2255.987	2255.286	0		672		FE	II	2257.594	2256.897	100	365.	488	
AR	II	2256.1054	2255.4067	30		867		NE	II	2257.601	2256.902	20		563	
CR	III	2256.175	2255.478	300	45.	893		V	I	2257.669	2256.968	50	37.	1000	
NI	II	2256.311	2255.612	15		835		V	II	2257.684	2256.984	20	16.	478	
NI	II	2256.330	2255.632	30		835		AL	IV	2257.884	2257.187	100		888	
CL	III	2256.34	2255.64	200	15.	38		CR	III	2258.086	2257.388	500	39.	893	
CO	II	2256.35	2255.65	4		825		FE	III	2258.107	2257.406	150	73.	188	
C	II	2256.38	2255.68	4	43.	287		CR	III	2258.253	2257.555	650	50.	893	
FE	II	2256.388	2255.691	500	365.	488		CO	I	2258.283	2257.582	10	16.	603	
FE	II	2256.465	2255.766	25	133.	896	H	CR	II	2258.32	2257.62	35	76.	340	
MN	III	2256.48	2255.77	2		301		CR	II	2258.46	2257.76	45	76.	340	
FE	I	2256.5634	2255.8647	20	73.	896		FE	II	2258.486	2257.786	250	365.	488	
NI	I	2256.570	2255.873	10	9.	488		NI	II	2258.525	2257.826	140		835	
FE	III	2256.6	2255.9			289		CO	II	2258.56	2257.86	3		825	
NI	II	2256.607	2255.908	50		835		BR	II	2258.611	2257.913	0		606	
V	II	2256.65	2255.95	1		478		CR	II	2258.66	2257.96	50	76.	340	
FE	II	2256.676	2255.979	1	4.	483	H	AR	II	2258.664	2257.965	10		506	
GE	I	2256.6994	2256.0007	50		7		CR	III	2258.679	2257.981	350	39.	893	
CR	II	2256.71	2256.01	50	77.	340		AL	I	2258.707	2258.008	7	6.	198	
CO	II	2256.72	2256.02	20		825		NE	IV	2258.72	2258.02	360		71	
NE	V	2256.75	2256.05	10		1024		CR	II	2258.79	2258.09	40	76.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
F	III	2258.83	2258.13	1		537		SC	IV	2260.982	2260.284	220		720	
NI	I	2258.843	2258.145	30	32.	488		NI	II	2261.003	2260.383	50		835	
MN	IV	2258.856	2258.155	0		799		NA	II	2261.20	2260.50	10		152	
CR	III	2258.883	2258.185	150		893		CU	I	2261.229	2260.528	360	20.	672	
CO	I	2259.029	2258.328	9		603		MN	III	2261.24	2260.53	2		301	
AR	II	2259.041	2258.342	10		506		FE	III	2261.248	2260.547	120	64.	168	
NI	II	2259.203	2258.504	5		835		FE	I	2261.295	2260.594	2	112.	605	
CO	II	2259.29	2258.59	2		825		NI	II	2261.344	2260.644	30		835	
CR	III	2259.314	2258.616	500		893		V	III	2261.37	2260.67	10		791	
V	II	2259.34	2258.64	2		478		KR	II	2261.450	2260.751	10		509	
NI	II	2259.403	2258.704	3		835		SI	V	2261.516	2260.817	100		941	
MN	I	2259.415	2258.714	2		148		V	III	2261.53	2260.83	40		325	
V	I	2259.506	2258.805	9		1000		AL	IV	2261.537	2260.838	60		888	
V	II	2259.515	2258.814	50	16.	478		FE	II	2261.552	2260.853	5	4.	463	H
FE	III	2259.636	2258.936	20		288		FE	I	2261.561	2260.860	12	73.	605	
N	II	2259.643	2258.945		16.0	521	P	FE	VI	2261.59	2260.89			228	F
CR	III	2259.702	2259.004	150		893		V	II	2261.786	2261.084	30	16.	478	
CR	I	2259.78	2259.08	12	41.	341		CR	III	2261.844	2261.145	90		893	
FE	III	2259.841	2259.140	10		188		V	III	2261.86	2261.16	3		325	
MN	III	2259.842	2259.143	3		301		AR	II	2261.911	2261.211	5		506	
FE	III	2259.94	2259.24	5		288		MN	III	2261.93	2261.23	2		301	
SE	III	2259.98	2259.28	30		587		TI	II	2261.93	2261.23	30	22.	403	
FE	I	2259.980	2259.279	1	16.	605		CO	II	2261.96	2261.26	1		825	
NI	II	2259.993	2259.294	140		835		S		2262.	2261.			107	N
FE	III	2260.107	2259.406	10		188		NI	I	2262.123	2261.424	50	13.	488	
FE	I	2260.2101	2259.5106	170	15.	896		CO	II	2262.249	2261.549	5		825	
MN	II	2260.26	2259.56	1		328		FE	III	2262.294	2261.592	350	111.	188	
NI	I	2260.260	2259.562	35	32.	488		CR	I	2262.32	2261.68	18	41.	341	
NE	V	2260.27	2259.57	100		1022		TI	II	2262.34	2261.64	10	22.	488	
SI	I	2260.286	2259.587	10	90.	608		NI	II	2262.385	2261.685	5		835	
FE	II	2260.291	2259.589	0		645		CR	III	2262.385	2261.686	400	39.	893	
NI	II	2260.425	2259.726	10		835		SI	I	2262.393	2261.693	5	47.	608	
NI	II	2260.617	2259.917	10		835		V	II	2262.55	2261.85	10		478	
ZN	III	2260.678	2259.980	0		162		NI	II	2262.766	2262.066	10		835	
CO	II	2260.71	2260.01	25		825		CO	I	2262.77	2262.07	0		603	
FE	II	2260.776	2260.078	5	4.	488	H	CO	II	2262.77	2262.07	0		825	
TI	I	2260.78	2260.08	10	15.	488		FE	III	2262.77	2262.07	1		268	
CR	III	2260.88	2260.18	3		490		NE	IV	2262.78	2262.08	250		71	
N	II	2260.921	2260.223		16.0	521	P	CR	I	2262.85	2262.15	7	41.	341	
FE	II	2260.926	2260.228	5	5.	488	H	NE	III	2262.86	2262.16	40		1031	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	I	2262.996	2262.294	6		148		AL	I	2264.438	2263.738	7	6.	198	
MG	VII	2263.	2262.			108		CU	II	2264.4868	2263.7864	150	153.	612	
CR	I	2263.02	2262.32	15	41.	341		ZN	III	2264.543	2263.843	1		162	
F	II	2263.036	2262.336	1		538		CR	I	2264.70	2264.00	5		341	
V	II	2263.106	2262.404	9	171.	478		TI	I	2264.77	2264.07	50		488	N
NI	II	2263.159	2262.459	2		835		CO	II	2264.81	2264.11	2		825	
CR	II	2263.28	2262.58	2	314.	340		NE	III	2264.81	2264.11	60		1031	
N	II	2263.284	2262.585		16.0	521		AR	II	2264.829	2264.128	5		506	
CO	I	2263.294	2262.592	10	14.	603		FE	III	2264.889	2264.188	40		288	
AR	II	2263.332	2262.632	20		506		FE	I	2265.0898	2264.3893	60	71.	896	
CR	III	2263.352	2262.653	350	45.	893		V	I	2265.09	2264.39	30	37.	1000	
FE	II	2263.385	2262.686	5	5.	488		CO	I	2265.11	2264.41	10		603	
V	II	2263.40	2262.70	2		478		FE	III	2265.160	2264.459	5		288	
GE	I	2263.41	2262.71	0		7		NI	II	2265.162	2264.461	320	12.	835	H
MN	III	2263.51	2262.81	2		301		NE	IV	2265.24	2264.54	160		71	
AR	II	2263.577	2262.877	5		506		CU	II	2265.268	2264.568	3		612	
FE	III	2263.588	2262.888	40	111.	288		FE	II	2265.289	2264.589	5	246.	488	
NI	II	2263.598	2262.898	30	39.	835		V	III	2265.34	2264.64	1		325	
CR	II	2263.63	2262.93	1		340		NI	II	2265.440	2264.739	50		835	
AR	II	2263.7690	2263.0687	20		867		CO	I	2265.582	2264.880	15	70.	603	
CU	I	2263.781	2263.079	460	24.	672		NE	III	2265.61	2264.91	200		1031	
CO	II	2263.81	2263.11	3		825		CR	III	2265.619	2264.919	350	39.	893	
SE	III	2263.82	2263.12	1		587		FE	I	2265.7550	2265.0543	40	16.	896	
AS	IV	2263.87	2263.17	800		584		TI	II	2265.83	2265.13	10		601	
V	I	2263.87	2263.17	1		1000		AR	II	2265.916	2265.215	40		506	
NE	III	2263.91	2263.21	240		1031		CO	II	2265.94	2265.24	5		825	
CU	II	2263.9140	2263.2137	75	133.	612		NI	II	2266.046	2265.345	30	39.	835	
FE	II	2263.923	2263.224	5	246.	488		CU	II	2266.0658	2265.3650	40		612	
C	VI	2264.01	2263.31			309		FE	III	2266.24	2265.54	40		186	
N	II	2264.031	2263.332		16.0	521		FE	I	2266.31	2265.61	1	73.	605	
NI	II	2264.075	2263.375	3		835		NE	V	2266.39	2265.71	350		1022	
NE	V	2264.09	2263.39	100		1024		N	II	2266.401	2265.701		16.0	521	P
NI	II	2264.144	2263.443	5		835		CO	II	2266.438	2265.737	5	9.	825	
V	III	2264.16	2263.46	2		325		N	III	2266.57	2265.87	1	26.0	521	
AL	I	2264.163	2263.463	25	5.	198		FE	II	2266.691	2265.991	1	5.	488	H
FE	III	2264.177	2263.477	40		288		AL	I	2266.715	2266.014	15		198	
FE	I	2264.178	2263.476	6	15.	605		CA	III	2266.77	2266.07	7		891	
CO	II	2264.30	2263.60	5		825		CL	III	2266.78	2266.08	200		43	
V	II	2264.314	2263.612	3		478		AS	IV	2266.83	2266.13	250		584	
KR	II	2264.376	2263.677	40		509		NE	III	2266.86	2266.16	160		1031	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
B	II	2267.02	2266.32	4		168		V	IV	2268.999	2268.298	500	8.	829	
P	II	2267.02	2266.32	20		496		MN	III	2269.03	2268.33	6		301	
NI	I	2267.048	2266.348	15	33.	488		CR	II	2269.04	2268.34	4	314.	340	
AR	II	2267.141	2266.441	20		506		V	II	2269.064	2268.361	4		478	
CR	III	2267.213	2266.513	60	67.	893		V	II	2269.25	2268.55	1		478	
CO	II	2267.225	2266.524	10		825		FE	II	2269.263	2268.562	1	5.	488	H
MN	III	2267.311	2266.610	7		301		AR	II	2269.326	2268.625	10		506	
NI	II	2267.348	2266.647	30		835		NI	II	2269.433	2268.732	1		835	
CR	I	2267.36	2266.66	18	41.	341		CO	I	2269.445	2268.742	12	69.	603	
FE	II	2267.399	2266.699	1	315.	488		TI	I	2269.48	2268.78	40	15.	488	
AS	I	2267.40	2266.70	25	18.	480		FE	II	2269.545	2268.844	1	5.	488	H
CO	II	2267.498	2266.797	8		825		C	II	2269.61	2268.91	4	34.	287	
NI	III	2267.604	2266.903	10		835		AR	II	2269.641	2268.940	5		506	
FE	I	2267.6074	2266.9063	15	70.	896		CL	III	2269.65	2268.95	500	15.	38	
B	II	2267.63	2266.93	4		168		NI	II	2269.710	2269.008	100		835	
AR	II	2267.647	2266.946	5		506		AL	I	2269.798	2269.096	25	5.	198	
NE	III	2267.68	2266.98	100		1031		FE	I	2269.8016	2269.1000	15	16.	896	
NI	II	2267.739	2267.038	5		835		TI	II	2269.84	2269.14	30	22.	488	
CR	I	2267.77	2267.07	6		341		AL	I	2269.913	2269.222	7	5.	198	
FE	I	2267.7859	2267.0847	80	17.	896		NI	II	2269.980	2269.278	2		835	
AR	II	2267.812	2267.111	20		506		V	II	2269.996	2269.293	3	15.	478	
CO	I	2267.816	2267.113	12	18.	603		N	III	2270.00	2269.30	1	26.0	521	
NI	II	2267.937	2267.236	100		835		C	II	2270.06	2269.36	1	34.	287	
N	III	2268.03	2267.33	25	26.0	521		MN	III	2270.245	2269.540	0		802	
FE	III	2268.12	2267.42	250	133.	188		AR	II	2270.302	2269.598	5		506	
FE	I	2268.1707	2267.4695	80	70.	896		C	II	2270.40	2269.70	10	34.	287	
NI	I	2268.255	2267.554	10	10.	488		CA	III	2270.544	2269.842	250		85	
FE	II	2268.285	2267.584	5	4.	488	H	MN	II	2270.550	2269.847	30		328	
V	II	2268.315	2267.612	5	15.	478		CO	II	2270.60	2269.90	5		825	
CR	I	2268.34	2267.64	15	41.	341		CO	II	2270.68	2269.98	M		825	
V	II	2268.415	2267.712	3		478		C	II	2270.90	2270.20	10	34.	287	
C	II	2268.47	2267.77	1	34.	287		NI	II	2270.916	2270.214	440	12.	835	H
CO	III	2268.613	2267.910	5		673		MN	III	2270.96	2270.26	1		301	
CR	III	2268.617	2267.916	120		893		S	III	2270.96	2270.26	300		285	
CO	II	2268.63	2267.93	2		825		S	IV	2271.	2270.			107	
CO	II	2268.67	2267.97	10		825		S	V	2271.	2270.			90	
TI	I	2268.68	2267.98	40	15.	488		ZN	III	2271.059	2270.357	0		162	
AS	IV	2268.76	2268.06	150		584		FE	I	2271.070	2270.368	1	72.	378	
CR	I	2268.83	2268.13	18	41.	341		BR	II	2271.076	2270.374	250		606	
CO	I	2268.866	2268.163	15	67.	603		N	III	2271.13	2270.43	10	26.0	521	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
N	II	2271.353	2270.651		16.0	521	P	KR	II	2273.294	2272.592	10		509	
FE	I	2271.377	2270.675	3		378		FE	I	2273.312	2272.610	3		378	
NI	II	2271.436	2270.734	100		835		GE	II	2273.316	2272.614	1		676	
FE	I	2271.5638	2270.8619	50	15.	896		NE	II	2273.328	2272.626	5		563	
C	V	2271.61	2270.91	40	12.	164		AR	II	2273.342	2272.640	20		506	
CR	II	2271.71	2271.01	3		340		TI	I	2273.35	2272.65	80	16.	488	
S	III	2271.73	2271.02	200		285		AL	IV	2273.36	2272.66	50		888	
NI	II	2271.788	2271.086	2		835		V	III	2273.38	2272.68	1		325	
MN	III	2271.826	2271.124	5		301		FE	III	2273.453	2272.751	110		288	
CO	II	2271.83	2271.13	9		825		AR	II	2273.466	2272.765	5		506	
V	II	2271.889	2271.185	8		478		CR	III	2273.493	2272.791	120		893	
CO	II	2271.91	2271.21	M		825		CL	III	2273.5	2272.8	100		43	
CO	IV	2271.98	2271.28	15		825		FE	I	2273.522	2272.8188	30	71.	896	
CR	I	2271.99	2271.29	3		341		CO	II	2273.53	2272.83	7		825	
SC	IV	2272.033	2271.331	550		720		NI	II	2273.567	2272.865	100		835	
AS	I	2272.07	2271.36	50	6.	480		CO	II	2273.61	2272.91	2		825	
FE	III	2272.260	2271.558	20		288		V	III	2273.66	2272.96	10		325	
MN	III	2272.34	2271.64	1		301		V	II	2273.728	2273.024	40	15.	478	
ZN	III	2272.418	2271.716	1		162		SC	II	2273.80	2273.10	3	2.	488	
CU	III	2272.430	2271.728	25		724		ZN	II	2273.852	2273.150	50		154	
FE	I	2272.4848	2271.7827	30	70.	896		KR	II	2273.930	2273.228	90		509	
N	III	2272.49	2271.79	1	26.0	521		TI	I	2274.03	2273.33	80	15.	488	
NI	II	2272.545	2271.843	30		835		CR	III	2274.043	2273.341	570		893	
V	II	2272.552	2271.848	10	15.	478		MG	III	2274.12	2273.41	7		2	
KR	II	2272.594	2271.892	4		509		BE	II	2274.2	2273.5			862	
NI	I	2272.653	2271.951	30	35.	488		N	III	2274.21	2273.51	4	26.0	521	
F	IV	2272.67	2271.97	25		173		CO	I	2274.28	2273.58	2		603	
V	I	2272.753	2272.048	4	35.	1000		CO	II	2274.29	2273.59	10		825	
FE	I	2272.7718	2272.0696	25	16.	896		CR	I	2274.32	2273.62	18	41.	341	
NI	II	2272.954	2272.251	3		835		V	II	2274.320	2273.616	9	170.	478	
CO	II	2272.961	2272.259	12	9.	825		NE	III	2274.34	2273.64	400		1031	M
FE	II	2273.01	2272.31	1		645		F	IV	2274.35	2273.65	10		173	
AL	IV	2273.050	2272.348	20		888		CD	II	2274.37	2273.67			825	
CR	III	2273.063	2272.361	60	67.	893		CR	III	2274.477	2273.777	120	39.	893	
N	III	2273.12	2272.42	1	26.0	521		V	II	2274.59	2273.89	2	27.	478	
AR	II	2273.126	2272.424	10		506		FE	I	2274.596	2273.893	1	73.	378	
V	II	2273.141	2272.437	1		478		FE	III	2274.70	2274.00	150	153.	188	
TI	I	2273.15	2272.45	10	16.	488		NI	II	2274.761	2274.058	5		835	
FE	III	2273.251	2272.549	20		288		FE	I	2274.7919	2274.0893	30	16.	896	
CO	II	2273.29	2272.59	4		825		N	III	2274.82	2274.12	1	26.0	521	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CO	I	2275.199	2274.495	9	14.	603		CL	II	2276.96	2276.25	8		345	
ZN	III	2275.221	2274.520	0		162		CU	II	2276.9614	2276.2583	200	13.	612	
NE	V	2275.25	2274.54	1		1024		CR	I	2277.01	2276.31	18	41.	341	
NI	II	2275.298	2274.595	3		835		FE	II	2277.079	2276.378	0	315.	488	
CO	I	2275.322	2274.617	8	72.	603		CR	III	2277.116	2276.415	500	50.	893	
V	II	2275.363	2274.658	1		478		NI	II	2277.140	2276.437	140	51.	835	
NI	I	2275.363	2274.662	5	9.	488		CA	III	2277.215	2276.512	350		85	
KR	II	2275.407	2274.706	1		509		CO	I	2277.228	2276.523	20		603	
NI	II	2275.427	2274.724	140	38.	835	H	CO	II	2277.24	2276.53			825	
CU	II	2275.4442	2274.7414	10	77.	612		AS	II	2277.316	2276.613	0		425	
KR	II	2275.593	2274.852	25		509		ZN	III	2277.324	2276.623	6		162	
AR	II	2275.6291	2274.9262	30		867		V	I	2277.366	2276.661	3	36.	1000	
AR	II	2275.757	2275.054	10		506		NI	II	2277.375	2276.672	180		835	
NI	II	2275.766	2275.063	1		835		AR	II	2277.44	2276.73	0		506	
V	III	2275.77	2275.07	20		791		TI	I	2277.45	2276.75	100	15.	488	
FE	I	2275.8946	2275.1917	12	16.	896		ZN	III	2277.484	2276.783	4		162	
V	III	2275.92	2275.22	20		325		FE	III	2277.575	2276.870	150	73.	188	
CR	III	2275.927	2275.226	250	39.	893		V	I	2277.594	2276.889	6	35.	1000	
MN	III	2275.95	2275.25	2		301		AS	IV	2277.60	2276.90	100		584	
F	III	2275.965	2275.262	4		537		CO	II	2277.60	2276.90	3		825	
NI	II	2275.987	2275.284	1		835		AS	II	2277.673	2276.970	30		425	
CR	I	2276.01	2275.31	25	41.	341		MN	I	2277.769	2277.065	0		148	
AR	II	2276.0648	2275.3618	30		867		ZN	III	2277.801	2277.103	0		162	
CO	II	2276.107	2275.404	8		825		FE	I	2277.8087	2277.1054	15	71.	896	
CA	I	2276.165	2275.462	15	6.	1018	A	FE	III	2277.864	2277.159	40		188	
CR	III	2276.179	2275.478	350	57.	893		C	V	2277.96	2277.25	5	12.	164	
V	I	2276.180	2275.475	3	93.	1000		NI	II	2277.985	2277.282	280		835	
V	II	2276.291	2275.586	7	15.	478		CO	II	2277.99	2277.29	2		825	
FE	I	2276.3002	2275.5972	10	111.	896		CU	III	2278.098	2277.395	40	20.	724	
FE	I	2276.379	2275.676	1	111.	378		KR	II	2278.126	2277.424	40		509	
NI	II	2276.387	2275.684	180	39.	835	H	CR	III	2278.167	2277.465	400	67.	893	
CO	II	2276.42	2275.72	1		825		FE	I	2278.3707	2277.6673	20	70.	896	
FE	I	2276.461	2275.758	3		378		KR	II	2278.430	2277.728	4		509	
V	II	2276.588	2275.883	7	27.	478		NI	I	2278.46	2277.76	10		602	
CO	I	2276.589	2275.884	9	68.	603		V	II	2278.497	2277.792	1		478	
CR	I	2276.71	2276.01	15		341		FE	III	2278.525	2277.820	150	127.	168	
CA	III	2276.72	2276.01	25		891		CO	II	2278.57	2277.87	1		825	
NI	II	2276.726	2276.023	120		835	H	C	V	2278.63	2277.92	20	12.	164	
FE	I	2276.7289	2276.0258	125	14.	896		P	II	2278.65	2277.95	0		431	
CO	II	2276.76	2276.16	1		825		MN	II	2278.74	2278.04	5		328	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2278.803	2278.098	4		478	CO	II	2281.06	2280.36	15		825
SI	I	2278.985	2278.281	10	89.	608	CO	II	2281.16	2280.46			825
CO	I	2279.003	2278.298	9	16.	603	CA	V	2281.2	2280.5			726
NI	II	2279.022	2278.318	200		835	KR	II	2281.251	2280.549	40		509
CL	III	2279.04	2278.34	500	15.	38	V	II	2281.287	2280.581	4		478
CU	II	2279.0420	2278.3384	40		612	CR	III	2281.310	2280.607	150	67.	893
NA	III	2279.117	2278.415	450		516	BR	II	2281.329	2280.627	250		606
FE	III	2279.137	2278.432	90	127.	188	NI	II	2281.384	2280.680	3		835
CO	II	2279.176	2278.472	15		825	F	IV	2281.42	2280.72	1		173
FE	I	2279.319	2278.614	2	16.	605	ZN	III	2281.515	2280.812	0		162
CO	II	2279.47	2278.77	5		825	CU	II	2281.6471	2280.9430	30		612
NI	II	2279.473	2278.770	280	22.	835	CO	II	2281.660	2280.956	10	9.	825
V	II	2279.617	2278.972	40	161.	478	NI	II	2281.688	2280.984	75		835
NE	III	2279.68	2278.98	200		1031	P	II	2281.70	2281.00	25	6.	496
CO	II	2279.719	2279.015	10		825	V	II	2281.941	2281.235	60	123.	478
CU	III	2279.806	2279.102	10		724	CO	I	2282.05	2281.34	5		603
FE	I	2279.856	2279.152	2		378	CA	III	2282.17	2281.47	40		891
V	I	2279.858	2279.152	4	35.	1000	AR	II	2282.216	2281.512	10		506
F	II	2279.960	2279.256	60		538	NI	II	2282.268	2281.564	30		835
HE	I	2280.	2279.	0		126	V	II	2282.307	2281.601	60	123.	478
CO	II	2280.01	2279.31	2		825	NA	III	2282.324	2281.621	300		516
CR	III	2280.022	2279.320	90		893	FE	I	2282.333	2281.629	2	112.	378
V	II	2280.082	2279.376	15	27.	478	FE	I	2282.37	2281.66	1	110.	605
CU	III	2280.120	2279.416	15	20.	724	CR	I	2282.42	2281.71	20		341
CO	I	2280.186	2279.480	15	67.	603	CR	III	2282.569	2281.866	60		893
NA	III	2280.186	2279.484	360		516	CO	II	2282.595	2281.891	15		825
NI	II	2280.238	2279.534	1		835	MN	II	2282.68	2281.98	1		328
CR	II	2280.35	2279.64	1		340	FE	I	2282.692	2281.986	1	17.	605
NI	II	2280.364	2279.660	15		835	CU	I	2282.78	2282.07	0		672
V	II	2280.467	2279.762	20	161.	478	ZN	III	2282.835	2282.132	2		162
FE	II	2280.620	2279.918	20	4.	488	BR	II	2282.893	2282.190	50		606
V	I	2280.63	2279.92	4		1000	AR	III	2282.91	2282.21	70	10.	488
CO	I	2280.633	2279.927	10	11.	603	NI	II	2283.065	2282.361	8		835
FE	I	2280.6407	2279.9368	80	16.	896	CO	II	2283.07	2282.37	1		825
V	III	2280.66	2279.96	10		325	CR	III	2283.074	2282.371	150	67.	893
TI	I	2280.70	2280.00	120	15.	488	NE	V	2283.31	2282.61	10		1022
N	III	2280.84	2280.14		7.4	521	SE	III	2283.32	2282.62	85		587
FE	I	2280.9198	2280.2158	12	70.	896	AR	II	2283.3250	2282.6205	80		867
FE	III	2281.002	2280.298	70		283	B	V	2283.36	2282.66			309
V	II	2281.044	2280.338	60	123.	478	KR	II	2283.385	2282.682	1		509



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
V	II	2283.569	2282.863	6	123.	478		CO	I	2285.52	2284.81	3		603	
FE	I	2283.5693	2282.8647	5	70.	896		CO	J	2285.57	2284.86	30	14.	603	
AL	IV	2283.730	2283.027	40		838		O	II	2285.59	2284.89	25		168	
AR	II	2283.75	2283.05	0		506		V	II	2285.627	2284.920	15	26.	478	
FE	I	2283.7789	2283.0743	8	71.	896		FE	III	2285.63	2284.92	110		288	
MN	III	2283.90	2283.19	2		301		FE	III	2285.685	2284.979	60	73.	188	
AR	II	2283.948	2283.243	70		506		V	I	2285.689	2284.982	3	93.	1000	
N	III	2283.95	2283.25	F	7.4	521	F	NI	II	2285.7	2284.995	2		835	
SI	II	2283.970	2283.266	3	18.03	678		FE	III	2285.7	2285.04	40		268	
S	IV	2284.	2283.			107		P	I	2285.82	2285.11	40	6.	496	
FE	I	2284.0099	2283.3053	20	16.	896		O	III	2285.82	2285.12	0		175	P
V	III	2284.05	2283.34	40		325		NI	II	2285.883	2285.178	50		835	
V	I	2284.089	2283.382	10	35.	1000		BR	II	2285.919	2285.215	500		606	
V	II	2284.175	2283.469	7	123.	478		F	IV	2285.92	2285.22	10		173	
O	II	2284.18	2283.48	25		168	P	N	II	2286.009	2285.305		16.0	521	P
CO	II	2284.225	2283.520	5	9.	825		CO	I	2286.115	2285.408	12	63.	603	
N	III	2284.29	2283.59	F	7.4	521	F	NI	II	2286.120	2285.415	5		835	
N	II	2284.357	2283.652	70	20.0	200		FE	II	2286.229	2285.525	0	184.	488	
FE	I	2284.3599	2283.6551	30	16.	896		AR	II	2286.317	2285.612	10		506	
CA	III	2284.39	2283.68	15		891		O	III	2286.36	2285.66	10		168	
AR	II	2284.458	2283.753	10		506		NA	III	2286.365	2285.661	390		516	
V	II	2284.472	2283.766	40		478		NI	II	2286.392	2285.687	25		835	
CL	III	2284.63	2283.93	700	15.	39		CR	III	2286.466	2285.762	25		893	
V	III	2284.64	2283.93	8		325		NE	IV	2286.49	2285.79	800		1024	
FE	II	2284.695	2283.991	5	132.	488	H	AR	II	2286.5050	2285.7998	40		867	
AR	II	2284.699	2283.994	70		506		CO	II	2286.51	2285.81	2		825	
FE	I	2284.7905	2284.0857	125	14.	896		CR	III	2286.58	2285.88			893	F P
CR	II	2284.84	2284.13	10		340		CR	I	2286.59	2285.88	25		341	
CU	II	2284.907	2284.203	1		612		ZN	III	2286.655	2285.951	2		162	
FE	II	2284.928	2284.224	1	105.	488		CL	III	2286.7	2286.0	300		43	
S	V	2285.	2284.			90		ZN	III	2286.790	2286.086	12		162	
CO	I	2285.074	2284.375	8	71.	603		CO	II	2286.852	2286.147	25	9.	825	H
MN	III	2285.11	2284.41	2		301		TI	II	2286.93	2286.23	10		601	
CR	III	2285.170	2284.466	700		893		CR	II	2286.98	2286.27	8	48.	340	
V	I	2285.200	2284.494	20	93.	1000		O	III	2287.05	2286.35	1		175	P
CR	I	2285.21	2284.50	7		341		CR	I	2287.08	2286.37	20	41.	341	
SI	II	2285.247	2284.542	1	18.03	678		FE	I	2287.147	2286.442	3		378	
FE	III	2285.34	2284.64	40		268		P	II	2287.19	2286.48	30	6.	496	
CR	I	2285.38	2284.67	25	41.	341		CR	III	2287.287	2286.583	400	50.	993	
V	II	2285.455	2284.748	10	45.	478		V	I	2287.288	2286.581	8	35.	1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
N	II	2287.322	2286.618		16.0	521	P	CU	I	2289.54	2288.83	0		672	
CU	II	2287.3507	2286.6454	100	152.	612		FE	I	2289.7425	2289.0366	20	70.	896	
F	IV	2287.39	2286.69	4		173		CO	II	2289.770	2289.065	2		825	
N	II	2287.394	2286.689	160	20.0	200		AR	II	2289.80	2289.09	5		506	
LI	II	2287.527	2286.822	I		307		FE	III	2289.845	2289.139	40		288	
NI	II	2287.558	2286.853	2		835		NI	II	2289.915	2289.209	6		835	
AR	II	2287.6302	2286.9247	40		867		V	II	2289.926	2289.219	70	27.	478	
AL	IV	2287.71	2287.01	2		888		CR	III	2289.953	2289.248	500		893	
SI	IV	2287.747	2287.041	250	22.	767		AR	III	2290.02	2289.31	40		79	
NI	II	2287.794	2287.089	180	22.	835	H	NE	VI	2290.07	2289.36	10		1024	
CR	III	2287.880	2287.175	300		893		AR	II	2290.0863	2289.3803	20		867	
FE	I	2287.9553	2287.2498	125	14.	896		CU	II	2290.1226	2289.4166	75	76.	612	
O	III	2287.98	2287.28	4		168	P	P	II	2290.20	2289.49	5	6.	496	
NI	I	2288.020	2287.315	5	34.	438		CO	I	2290.203	2289.495	9	15.	603	
FE	I	2288.168	2287.462	3		378		SI	I	2290.3132	2289.6074	20	88.	608	
N	III	2288.18	2287.48	F	7.4	521	F	V	III	2290.36	2289.66	8		325	
BR	II	2288.327	2287.623	500		606		AR	II	2290.419	2289.713	30		506	
FE	I	2288.3365	2287.6309	40	71.	896		AR	II	2290.477	2289.771	50		506	
NI	II	2288.354	2287.648	220	38.	835	H	N	II	2290.54	2289.84	1	16.0	200	
CL	II	2288.360	2287.655	20		613		CO	II	2290.65	2289.94	1		825	
CO	I	2288.511	2287.804	12	64.	603		NI	I	2290.687	2289.982	100	5.	488	
N	III	2288.53	2287.83	F	7.4	521	F	AR	II	2290.727	2290.021	5		506	
V	III	2288.63	2287.93	30		325		FF	I	2290.7724	2290.0663	10	70.	896	
CR	I	2288.82	2288.11	3		341		FE	III	2290.832	2290.126	110	153.	288	
O	III	2288.82	2288.12	0		175		CU	II	2290.8674	2290.1613	3		612	
AS	I	2288.83	2288.12	500	6.	480		N	II	2290.965	2290.259	40	20.0	200	
CL	II	2288.865	2288.159	56		613		V	I	2290.971	2290.263	2		1000	
ZN	III	2288.883	2288.178	5		162		CL	II	2291.024	2290.318	10		613	
AL	IV	2288.99	2288.29	2		888		CO	II	2291.029	2290.323	8		825	
O	III	2289.06	2288.36	0		175		AR	II	2291.1311	2290.4249	30		867	
NI	I	2289.101	2288.396	20	34.	488		KR	II	2291.161	2290.455	25		509	
N	II	2289.150	2288.444	110	20.0	200		CO	I	2291.249	2290.541	10	66.	603	
MN	I	2289.156	2288.449	20		148		KR	II	2291.256	2290.550	1		509	
V	III	2289.21	2288.51	30		791		FE	I	2291.2595	2290.5533	25	71.	896	
CO	II	2289.252	2288.546	5		825		AR	III	2291.32	2290.61	60		79	
FE	I	2289.314	2288.608	1	72.	378		CR	III	2291.368	2290.662	570	50.	893	
AR	II	2289.471	2288.765	40		506		FE	I	2291.4811	2290.7748	10	70.	896	
CO	I	2289.482	2288.774	15	69.	603		FE	I	2291.613	2290.907	3		378	
AS	II	2289.489	2288.784	5		425		CU	II	2291.7087	2291.0024	50	179.	612	
AR	III	2289.53	2288.82	20		79		SI	I	2291.740	2291.034	35	46.	608	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	III	2291.794	2291.088	10		893		NE	IV	2293.85	2293.14	50		1024	
CR	II	2291.82	2291.11	10	131.	340		V	I	2293.952	2293.243	2		1000	
FE	I	2291.8256	2291.1193	40	70.	896		N	II	2294.025	2293.318	70	20.0	200	
GE	II	2291.899	2291.193	3		678		O	II	2294.03	2293.32	90	19.	488	
S	V	2292.	2291.			90		MN	III	2294.041	2393.334	5		301	
CO	II	2292.00	2291.29	5		825		CO	II	2294.090	2293.383	25	9.	825	
CL	II	2292.080	2291.374	10		613		NE	IV	2294.20	2293.49	350		1024	
V	II	2292.089	2291.381	3		478		N	II	2294.240	2293.534		16.0	521	P
CL	III	2292.09	2291.38	400	15.	38		NE	VI	2294.3	2293.6	350		1022	Q
CO	I	2292.158	2291.450	12	68.	603		NI	II	2294.333	2293.626	4		835	
V	I	2292.235	2291.527	10	35.	1000		CA	III	2294.346	2293.639	25		85	
FE	I	2292.3331	2291.6267	8	17.	896		FE	II	2294.472	2293.765	5	184.	488	H
N	II	2292.35J	2291.652	70	16.0	200		TI	I	2294.49	2293.78	30	14.	488	
FE	III	2292.416	2291.710	20	.	268		CU	I	2294.551	2293.842	500	19.	672	
CR	I	2292.45	2291.74	10		341		FE	I	2294.5548	2293.8478	25	15.	896	
CL	III	2292.52	2291.81	400	15.	38		CR	I	2294.57	2293.86	1		341	
FE	III	2292.558	2291.850	90	156.	188		CO	I	2294.712	2294.003	10	14.	603	
CR	II	2292.56	2291.85	4	.	340		AR	III	2294.76	2294.05	30		79	
TI	II	2292.56	2291.85	10		601		FE	I	2294.807	2294.100	3		378	
CO	II	2292.688	2291.982	30	21.	825		CR	III	2294.838	2294.131	150		893	
FE	I	2292.706	2291.999	20		896	M	F	IV	2294.88	2294.17	10		173	
MN	III	2292.79	2292.09	7		301		TI	I	2294.95	2294.24	30	14.	488	
AR	II	2292.837	2292.130	40		506		CU	II	2295.0750	2294.3680	175	13.	612	
MN	I	2292.897	2292.189	30		148		FE	I	2295.1149	2294.4078	80	14.	896	
AR	III	2292.96	2292.25	40		79		CR	II	2295.17	2294.46	8	191.	340	
CR	III	2293.230	2292.524	150		893		FE	II	2295.310	2294.603	5	184.	488	H
FE	I	2293.2306	2292.5240	170	15.	896		NI	II	2295.335	2294.628	1		835	
V	II	2293.296	2292.588	30	26.	478		FE	VI	2295.44	2294.73			228	F
ZN	III	2293.297	2292.591	10		162		FE	III	2295.54	2294.83	1		288	
N	II	2293.359	2292.652	40	20.0	200		MN	III	2295.565	2294.858	3		301	
CU	II	2293.3969	2292.6902	3		612		AR	III	2295.62	2294.91	50		79	
CO	II	2293.40	2292.69	2		825		CL	II	2295.667	2294.959	43		613	
FE	II	2293.476	2292.770	1	315.	488		ZN	IV	2295.680	2294.940	5		154	
FE	I	2293.50	2292.79	1	74.	605		V	II	2295.701	2294.992	40	26.	478	
FE	I	2293.535	2292.828	30		896	M	CR	II	2295.91	2295.20	4	319.	340	
CU	II	2293.6773	2292.9705	3		612		CL	II	2295.913	2295.205	15		613	
GE	IV	2293.7	2293.0	2		406		CO	I	2295.932	2295.223	15	12.	603	
FE	III	2293.764	2293.056	250	156.	186		CR	III	2296.016	2295.309	90		893	
NI	I	2293.820	2293.114	25	32.	488		FE	I	2296.017	2295.310	1		378	
MN	I	2293.830	2293.122	2		148		AR	II	2296.056	2295.349	30		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SI	I	2296.108	2295.401	10	46.	608		MN	II	2298.30	2297.59	5		328	
V	I	2296.123	2295.414	4	33.	1000		AR	II	2298.353	2297.645	5		506	
CO	II	2296.15	2295.44	2		825		MN	III	2298.37	2297.67	3		301	
SI	III	2296.183	2295.476	60	76.	768		MN	II	2298.40	2297.69	5		328	
V	II	2296.213	2295.504	20	264	478		NI	II	2298.443	2297.735	3		835	
FE	I	2296.244	2295.535	1	109.	605		FE	I	2298.4948	2297.7870	140	14.	896	
AL	II	2296.25	2295.54	15	14.	1015		F	IV	2298.53	2297.82	10		173	
O	III	2296.259	2295.552	0		1032		AR	II	2298.587	2297.879	20		506	
CR	III	2296.267	2295.560	570	62.	893		CR	III	2298.622	2297.916	350	50.	893	
FE	III	2296.568	2295.859	570		188		SC	IV	2298.676	2297.970	5		720	
CO	II	2296.61	2295.90	3		825		SC	IV	2298.816	2298.110	160		720	
CO	I	2296.747	2296.038	18	68.	603		FE	I	2298.8772	2298.1693	240	14.	896	
MN	III	2296.754	2296.043	1		802		FE	II	2298.94J	2298.221	10	133.	896	H
NI	II	2296.797	2296.089	100		835		NI	II	2298.978	2298.270	180	21.	835	H
FE	II	2296.816	2296.108	1		1026		F	IV	2299.00	2298.29	60		173	
V	III	2296.89	2296.18	15		791		P	II	2299.03	2298.32	10	6.	496	
MN	III	2296.89	2296.19	2		301		CA	III	2299.043	2298.335	3		64	
FE	I	2296.895	2296.188	2	111.	378		CR	I	2299.05	2298.34	1		341	
AR	II	2296.907	2296.202	5		506		CO	I	2299.066	2298.356	15	67.	603	
CR	II	2296.93	2296.22	2	48.	340		NI	II	2299.125	2298.417	2		835	
AR	III	2296.95	2296.24	40		79		NE	II	2299.163	2298.455	10		563	
NI	II	2297.259	2296.552	200	21.	835	H	NI	II	2299.199	2298.491	100	39.	835	
FE	II	2297.369	2296.662	1	167.	488		CL	III	2299.22	2298.51	500	10.	43	
CO	I	2297.413	2296.704	18	67.	603		FE	I	2299.3682	2298.6602	20	15.	896	
FE	II	2297.476	2296.769	1	133.	488		MN	III	2299.384	2298.676	3		301	
MN	II	2297.48	2296.77	20		328		AR	II	2299.414	2298.706	5		506	
C	III	2297.578	2296.870	1000	8.	34		CO	II	2299.433	2298.725	15	21.	825	
SI	III	2297.581	2296.873	160	93.	768		CR	III	2299.57	2298.87	1		490	
MN	I	2297.589	2296.880	5		148		MN	I	2299.585	2298.876	20		148	
FE	I	2297.598	2296.890	15		896	M	MN	II	2299.667	2298.959	60	2.	328	H
FE	I	2297.6345	2296.9269	25	14.	896		NE	III	2299.67	2298.96	20		1031	M
MN	II	2297.64	2296.93	3		320		MN	III	2299.675	2298.963	0		802	
S	II	2297.67	2296.96	600		265		NI	II	2299.766	2299.058	30		835	
NI	II	2297.849	2297.141	200	11.	835	H Q	FE	I	2299.9283	2299.2201	80	14.	896	
CR	III	2297.87	2297.16	1		490		V	I	2300.047	2299.337	5		1000	
CR	II	2297.88	2297.17	50	19.	340		AL	III	2300.120	2299.360	20		826	
CR	III	2298.012	2297.304	40		893		CO	II	2300.13	2299.42	25		825	
CO	II	2298.05	2297.34	8		825		CR	I	2300.13	2299.42	1		341	
FE	I	2298.171	2297.463	8		896	M	FE	I	2300.162	2299.453	1	71.	605	
NI	II	2298.197	2297.489	180	11.	835	H	AL	III	2300.173	2299.428	10		826	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CU	III	2300.181	2299.473	100		724		MN	I	2301.969	2301.260	1		148	
CU	II	2300.1973	2299.4892	10		612		P	II	2302.08	2301.38	00		431	
CR	III	2300.209	2299.503	200		893		CO	II	2302.10	2301.39	60	9.	825	
MN	II	2300.22	2299.51	5		328		FE	II	2302.131	2301.424	1	184.	488	H
CR	II	2300.23	2299.52	5		340		FE	I	2302.276	2301.567	4		896	M
V	I	2300.253	2299.544	3	34.	1000		NI	I	2302.28	2301.57	10		602	
NI	II	2300.359	2299.651	140	27.	835	H	FE	I	2302.310	2301.601	4		896	M
AR	II	2300.380	2299.672	10		506		FE	I	2302.3925	2301.6839	50	14.	896	
FE	I	2300.459	2299.751	4		896	M	KR	II	2302.444	2301.737	90		509	
CO	II	2300.464	2299.756	40	21.	825		MN	I	2302.458	2301.748	4		148	
TI	I	2300.57	2299.86	100	14.	488		AR	II	2302.534	2301.825	30		506	
CR	II	2300.79	2300.08	8	319.	340		FE	I	2302.674	2301.965	4		896	M
NI	II	2300.805	2300.097	180	27.	835	H	CU	I	2302.747	2302.036	0		672	
FE	I	2300.8499	2300.1416	170	15.	896		AR	III	2302.78	2302.07	100		337	
AR	II	2300.887	2300.179	50		506		AR	II	2302.786	2302.077	40		506	
MN	II	2300.91	2300.20	5		328		NI	II	2302.850	2302.141	1		835	
NE	II	2300.953	2300.245	50		563		V	II	2302.966	2302.256	5	44.	478	
MN	I	2301.010	2300.300	8		148		FE	VI	2303.03	2302.32			228	F
O	II	2301.06	2300.35	150	19.	488		NI	II	2303.188	2302.479	140	59.	835	H
KR	II	2301.086	2300.380	90		509		V	I	2303.241	2302.531	4	32.	1000	
NE	III	2301.09	2300.38	40		1031	M	LI	II	2303.277	2302.568	I		307	
AS	II	2301.164	2300.456	0		425		P	IV	2303.33	2302.62	1		937	
CO	II	2301.173	2300.465	3		825		CO	II	2303.43	2302.72	3		825	
CR	III	2301.210	2300.504	650	55.	893		TI	I	2303.46	2302.75	100	14.	488	
FE	I	2301.232	2300.524	4		896	M	CR	III	2303.490	2302.783	120		893	
CR	II	2301.29	2300.58	30	149.	340		FE	III	2303.518	2302.808	150	152.	188	
FE	I	2301.309	2300.599	1	108.	605		P	IV	2303.52	2302.81	1		937	
NE	II	2301.401	2300.693	5		563		AR	III	2303.55	2302.84	20		337	
MN	I	2301.438	2300.728	3		148		V	I	2303.58	2302.87	1		1000	
AR	III	2301.46	2300.75	80		337		NI	I	2303.680	2302.973	50	32.	488	
NI	I	2301.481	2300.774	100	29.	488		NI	II	2303.705	2302.996	320	11.	835	H
CO	II	2301.496	2300.788	25		825		FE	III	2303.722	2303.012	120	138.	188	
CL	II	2301.518	2300.809	15		613		SI	I	2303.7675	2303.0585	55	87.	608	
SI	III	2301.638	2300.930	100	76.	768		CU	I	2303.826	2303.116	320	23.	672	
NI	II	2301.723	2301.014	20	39.	835		FE	III	2303.913	2303.203	25	138.	188	
AL	IV	2301.75	2301.04	3		888		N	II	2303.92	2303.21	5	16.0	200	
AS	IV	2301.75	2301.04	800		584		V	II	2303.948	2303.238	10	26.	478	
FE	XIII	2301.8	2301.1			726	F	S		2304.	2303.			107	N
AS	IV	2301.86	2301.15	50		584		CO	I	2304.03	2303.31	M		603	
FE	I	2301.884	2301.175	100		896	M	LI	II	2304.039	2303.330	I		307	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	II	2304.062	2303.353	8	167.	896		CR	II	2306.23	2305.52	2	149.	340	
FE	I	2304.1334	2303.4244	100	15.	896		GE	I	2306.30	2305.59	10		7	
CO	I	2304.214	2303.504	9	10.	603		CR	I	2306.31	2305.60	2		341	
FE	I	2304.2900	2303.5810	125	15.	896		TI	I	2306.40	2305.69	120	14.	488	
NI	II	2304.397	2303.688	50		835		MN	I	2306.414	2305.703	15		148	
FE	III	2304.434	2303.725	20		288		N	VII	2306.5	2305.8			309	
NI	II	2304.463	2303.754	0		835		AR	II	2306.5689	2305.8593	20		867	
CR	III	2304.500	2303.793	1		893		AS	IV	2306.59	2305.88	250		584	
FE	II	2304.547	2303.840	1		488		CR	II	2306.65	2305.94	1		340	
NI	II	2304.557	2303.848	50		835		NE	II	2306.672	2305.962	60		563	
NE	III	2304.65	2303.94	60		1031	M	CO	II	2306.71	2306.00	15		825	
CO	I	2304.676	2303.966	12	62.	603		NI	II	2306.737	2306.028	30		835	
CR	II	2304.74	2304.02	4	130.	340		O	III	2306.752	2306.044	0.		1032	
BR	II	2304.784	2304.076	250		606		CL	VII	2306.8	2306.1			111	
CO	I	2304.893	2304.182	10	11.	603		CO	II	2306.81	2306.10		M	825	
CO	II	2304.91	2304.20	4		825		FE	I	2306.8812	2306.1716	6	71.	896	
FE	I	2304.916	2304.207	4		896	M	HE	II	2306.905	2306.195			309	
V	I	2305.059	2304.349	4		1000		NE	V	2307.02	2306.31	50		1024	
CL	II	2305.30	2304.59	2		345		FE	I	2307.0920	2306.3823	15	111.	896	
CO	II	2305.39	2304.68	5		825		SI	III	2307.14	2306.42	7	79.	768	
FE	I	2305.4429	2304.7336	12	71.	896		N	II	2307.159	2306.451		16.0	521	P
FE	II	2305.444	2304.736	5	184.	488	H	SC	IV	2307.214	2306.506	160		720	
V	II	2305.496	2304.785	7		478		FE	III	2307.282	2306.571	60		188	
NE	II	2305.543	2304.834	20		563		NE	III	2307.32	2306.61	120		1031	M
AS	II	2305.554	2304.845	0		425		NE	II	2307.336	2306.626	5		563	
NE	III	2305.58	2304.87	80		1031	M	FE	I	2307.377	2306.667	6		896	M
FE	II	2305.615	2304.906	4		896		FE	II	2307.388	2306.677		M	645	
N	II	2305.63	2304.92		36.	521	P	ZN	III	2307.408	2306.700	0		162	
KR	II	2305.648	2304.940	10		509		CO	II	2307.481	2306.771	4		825	
CA	III	2305.66	2304.95	7		891		CR	II	2307.52	2306.81	10	19.	340	
MN	II	2305.718	2305.009	100	2.	328	H	N	II	2307.522	2306.814		36.	521	P
CO	I	2305.880	2305.169	15	14.	603		FE	I	2307.566	2306.856	5		896	M
CR	I	2305.94	2305.23	2		341		SI	III	2307.604	2306.889	3	79.	768	
NI	II	2305.949	2305.239	140	38.	835		CO	II	2307.709	2306.999	20		825	
NE	II	2306.059	2305.350	30		563		ZN	III	2307.734	2307.026	10		162	
CA	III	2306.12	2305.42	25		891		FE	I	2307.787	2307.077	6		896	M
AR	II	2306.148	2305.439	10		506		SI	III	2307.870	2307.107		G	768	
ZN	III	2306.190	2305.482	1		162		CR	II	2307.90	2307.19	35	79.	340	
NE	III	2306.21	2305.50	0		1031	M	AR	II	2307.976	2307.266	20		506	
MN	I	2306.229	2305.513	5		148		NE	III	2307.98	2307.27	40		1031	M

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	II	2308.024	2307.314	6		896		FE	I	2310.153	2309.442	8		896	M
NI	I	2308.060	2307.351	15	35.	488		MN	III	2310.224	2309.514	3		301	
AR	II	2308.166	2307.456	20	.	506		CU	II	2310.2299	2309.5195	50		612	
CO	II	2308.189	2307.479	15		825		N	II	2310.24	2309.53	5	36.	200	
CR	II	2308.27	2307.56	10	319.	340		FE	III	2310.290	2309.578	40	144.	188	
ZN	III	2308.308	2307.599	20		162		AR	II	2310.5703	2309.8598	20		867	
SE	III	2308.33	2307.62	1		587		NA	III	2310.698	2309.989	450		516	
V	I	2308.37	2307.66	1		1000		CR	III	2310.744	2310.035	500		893	
CR	I	2308.42	2307.71	1		341		FE	II	2310.801	2310.090	4		896	
O	II	2308.47	2307.76	4		168	P	NI	II	2310.857	2310.147	2		835	
NI	II	2308.491	2307.781	50	38.	835		FE	I	2310.877	2310.166	6		896	M
SC	III	2308.532	2307.823	10		855		V	I	2310.892	2310.180	20	32.	1000	
CO	II	2308.561	2307.851	40	9.	825	H	CO	II	2310.95	2310.24	1		825	
SI	II	2308.573	2307.863	2	18.02	678		SC	III	2310.950	2310.241	14		855	
MN	III	2308.883	2308.173	10		301		FE	I	2310.971	2310.260	6		896	M
AS	IV	2308.90	2308.19	100		584		CA	III	2311.01	2310.30	25		891	
SI	III	2308.901	2308.191	160	76.	768		P	II	2311.05	2310.34	0		431	
NI	II	2308.988	2308.278	2		835		CO	I	2311.07	2310.36	1		603	
V	I	2308.998	2308.287	15	32.	1000		NE	II	2311.089	2310.378	30		563	
FE	I	2309.087	2308.377	6		696	M	NI	II	2311.321	2310.610	1		835	
NI	II	2309.228	2308.518	120	50.	835		NE	II	2311.434	2310.723	60		563	
O	III	2309.41	2308.70	4		168		CR	II	2311.47	2310.75	1		340	
ZN	III	2309.469	2308.760	10		162		CA	III	2311.507	2310.796	250		85	
FE	II	2309.477	2308.767	5		896		FE	III	2311.518	2310.806	25		188	
MN	II	2309.50	2308.79	5		328		CO	II	2311.531	2310.820	4		825	
V	II	2309.542	2308.831	5	44.	478		NI	I	2311.662	2310.952	500	10.	488	
MN	III	2309.582	2308.872	2		301		CR	II	2311.67	2310.96	2		340	
TI	I	2309.59	2308.88	20	14.	488		V	I	2311.670	2310.958	5		1000	
CL	II	2309.65	2308.94	4		345		CO	I	2311.674	2310.962	12		603	
MN	II	2309.68	2308.97	10		328		AL	I	2311.746	2311.035	25	12.	198	
CO	I	2309.69	2308.98	M		603		NI	II	2311.772	2311.061	6		835	
AS	IV	2309.69	2308.99	10		584		N	II	2311.871	2311.161		36.	521	P
FE	I	2309.7093	2308.9990	110	14.	896		FE	II	2311.935	2311.224	4	245.	896	H
CO	I	2309.731	2309.020	10	11.	603		FE	II	2312.002	2311.291	5		896	
CO	II	2309.75	2309.04	M		825		NI	II	2312.052	2311.341	5		835	
MN	I	2309.769	2309.057	2		148		CO	I	2312.06	2311.35	10	62.	603	
V	II	2309.784	2309.072	10	26.	478		CR	I	2312.17	2311.46	4		341	
AR	II	2309.858	2309.148	60	.	506		V	I	2312.177	2311.465	30	32.	1000	
N	II	2309.97	2309.26		36.	521	P	FE	III	2312.292	2311.580	40		188	
MN	I	2310.085	2309.374	10		148		N	II	2312.292	2311.582		16.0	521	P

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	II	2312.296	2311.585	75		835		AR	II	2313.974	2313.263	5		506	
O	III	2312.299	2311.589	10		1032		FE	II	2314.010	2313.300	5	288.	488	
CO	II	2312.310	2311.599	40	9.	825	H	AL	I	2314.237	2313.526	60	12.	198	
CU	IV	2312.32	2311.61	13		713		MN	III	2314.245	2313.534	5		301	
NE	II	2312.342	2311.631	20		563		NE	II	2314.262	2313.547	5		563	
SI	II	2312.430	2311.719	1	22.	678		FE	I	2314.276	2313.564	6		896	M
NE	II	2312.431	2311.720	30		563		ZN	III	2314.317	2313.607	20		162	
F	IV	2312.54	2311.83	25		173		CO	II	2314.318	2313.607	30	21.	825	
V	II	2312.62	2311.91	1		478		NI	I	2314.37	2313.66	10		602	
KR	II	2312.728	2312.018	150		509		AR	II	2314.4307	2313.7194	70		867	
FE	II	2312.736	2312.024	6	105.	896	H	AR	II	2314.431	2313.720	70		506	
NI	II	2312.765	2312.054	2		835		NI	II	2314.500	2313.789	2		835	
CA	III	2312.787	2312.076	570		85		CR	II	2314.53	2313.82	3		340	
MN	II	2312.81	2312.10	3		328		MN	III	2314.629	2313.918	7		301	
SC	IV	2312.830	2312.120	5		720		V	II	2314.652	2313.939	9	44.	478	
N	II	2312.84	2312.13	1	35.	200		FE	II	2314.652	2313.941	6	184.	896	
NI	II	2312.951	2312.240	50	27.	835		NI	I	2314.687	2313.976	500	10.	488	
V	II	2313.012	2312.299	2		478		CO	II	2314.752	2314.041	50	9.	825	H
MN	I	2313.016	2312.304	20		148		FE	II	2314.757	2314.046	0		1026	
FE	I	2313.026	2312.315	5		896	M	V	II	2314.768	2314.055	3	44.	478	
NI	I	2313.045	2312.335	250	10.	488		V	III	2314.81	2314.10	250	11.	791	
CU	III	2313.064	2312.353	12		724		GE	I	2314.9128	2314.2014	100	10.	7	
SC	III	2313.093	2312.383	12		855		ZN	III	2314.911	2314.230	10		162	
V	I	2313.122	2312.410	8	32.	1000		KR	II	2314.954	2314.243	120		509	
AL	I	2313.202	2312.491	40	12.	198		TI	I	2314.98	2314.27	20	14.	488	
V	I	2313.244	2312.531	10	95.	1000		N	III	2315.27	2314.56	4	28.0	521	
CO	II	2313.262	2312.551	30	21.	825		CR	III	2315.343	2314.632	800	44.	893	
FE	I	2313.322	2312.611	6		896	M	CO	II	2315.355	2314.644	8		825	
MN	II	2313.39	2312.68	30		328		NA	III	2315.36	2314.65	0		516	
ZN	IV	2313.43	2312.72	6		314		KR	II	2315.363	2314.652	25		509	
CO	II	2313.50	2312.79	5		825		V	I	2315.404	2314.691	20	90.	1000	
FE	VI	2313.57	2312.86			228	F	FE	I	2315.413	2314.701	10		896	M
NI	II	2313.627	2312.916	140	58.	835	H	P	II	2315.42	2314.70	10		496	
O	II	2313.76	2313.05	25		168		CR	II	2315.42	2314.71	40	19.	340	
SI	II	2313.811	2313.100	0	37.	678		O	III	2315.508	2314.797	10		1032	
FE	I	2313.8153	2313.1041	125	14.	896		CR	II	2315.52	2314.81	8	19.	340	
FE	I	2313.901	2313.190	10		896	M	CO	II	2315.676	2314.965	40	9.	825	H
NI	II	2313.919	2313.208	3		835		AR	II	2315.681	2314.970	60		506	
V	IV	2313.947	2313.236	1		829		AL	I	2315.694	2314.983	25	12.	198	
FE	I	2313.973	2313.262	5		896	M	V	II	2315.70	2314.99	2		478	



SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
NI	II	2315.778	2315.066	2	835		CO	II	2317.602	2316.896		825	
NE	II	2315.807	2315.095	5	563		FE	I	2317.623	2316.911	10	896	M
CU	III	2315.815	2315.103	20	724		P	II	2317.75	2317.04	1	496	
N	II	2315.96	2315.25	1	200	35.	N	II	2317.758	2317.046	285	200	
N	II	2316.00	2315.29		521	35.	CO	II	2317.769	2317.057	30	825	
						P							
FE	III	2316.01	2315.30	60	188		NE	II	2317.776	2317.064	20	563	
AR	II	2316.018	2315.306	30	506		NI	I	2317.871	2317.159	250	488	
FE	II	2316.025	2315.314	0	488	389.	BR	II	2318.032	2317.321	1000	606	
F	VI	2316.09	2315.37	800	1022		N	III	2318.06	2317.35	1	521	
KR	II	2316.245	2315.534	150	509		FE	II	2318.064	2317.352	20	896	
O	III	2316.259	2315.548	40	1032		FE	II	2318.092	2317.380	8	896	
NI	II	2316.270	2315.558	20	835		O	III	2318.139	2317.427	25	1032	
V	I	2316.34	2315.634	30	1000	32.	CR	III	2318.160	2317.448	90	893	
NA	II	2316.36	2315.65	1	693		AL	I	2318.194	2317.482	80	199	
MN	II	2316.38	2315.66	10	328		CO	I	2318.229	2317.516	5	603	
CU	II	2316.393	2315.682	1	612		FE	I	2318.308	2317.596	8	896	M
FE	III	2316.41	2315.70	250	188		ZN	III	2318.376	2317.664	15	162	
FE	I	2316.441	2315.729	8	896	M	AR	II	2318.4582	2317.7460	50	867	
CO	II	2316.455	2315.743	10	825		FE	I	2318.6105	2317.8983	8	896	
NE	II	2316.528	2315.816	10	563		N	IV	2318.80	2318.09	160	824	
NI	II	2316.554	2315.842	2	835		FE	III	2318.816	2318.102	60	188	
CO	II	2316.65	2315.94	1	825		MG	III	2318.84	2318.13	7	2	
FE	II	2316.748	2316.035	1	645		MN	III	2318.857	2318.145	2	301	
NI	II	2316.751	2316.039	320	835	H	FE	I	2318.863	2318.151	8	896	M
V	III	2316.81	2316.10	1	325		MN	I	2318.88	2318.17	1	148	
O	II	2316.83	2316.12	25	168	Q	FE	I	2318.899	2318.187	6	896	M
CR	III	2316.84	2316.13	3	490		MN	II	2318.99	2318.28	5	328	
MN	II	2316.87	2316.16	5	328		FE	II	2319.030	2318.318	6	896	
CO	I	2316.870	2316.157	10	603	14.	NI	II	2319.034	2318.321	5	835	
AR	II	2317.011	2316.299	80	506		CO	II	2319.129	2318.417	30	825	
KR	II	2317.033	2316.322	200	509		NE	II	2319.177	2318.465	20	563	
GE	I	2317.15	2316.44	10	7		CR	II	2319.20	2318.49	2	340	
MN	III	2317.180	2316.465	6	802		MN	I	2319.215	2318.501	2	148	
N	II	2317.205	2316.493	220	200	16.	NI	II	2319.221	2318.509	140	835	
FE	I	2317.224	2316.512	6	896	M	FE	II	2319.246	2318.534	5	488	H
N	II	2317.402	2316.690	160	200	16.	AR	II	2319.25	2318.54	0	506	
CO	I	2317.446	2316.733	5	603		CR	II	2319.48	2318.77	10	340	
V	I	2317.464	2316.751	25	1000	90.	NI	I	2319.482	2318.770	5	488	
O	II	2317.50	2316.79	25	168		FE	II	2319.490	2318.778	0	1026	
CO	I	2317.556	2316.843	5	603	11.	NI	XIV	2319.5	2318.8		726	F

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	III	2319.527	2318.815	0		724		N	III	2321.04	2320.33	0	28.0	521	
MN	II	2319.63	2318.91	30		328		FE	I	2321.0707	2320.3579	140	14.	896	
V	III	2319.65	2318.94	200	11.	791		CR	I	2321.10	2320.39	3		341	
V	V	2319.66	2318.95	200		929		CR	II	2321.10	2320.39	10	19.	340	
P	II	2319.71	2319.00	0		431		FE	I	2321.118	2320.405	10		896	M
AL	I	2319.770	2319.057	40	12.	198		CO	I	2321.13	2320.41	1		603	
CR	III	2319.777	2319.065	700	44.	893		MN	II	2321.14	2320.42	60		328	
CO	I	2319.866	2319.152	4	13.	603		FE	VI	2321.28	2320.57			228	F
FE	III	2319.935	2319.220	250	72.	168		FE	II	2321.425	2320.712	0		1026	
NI	II	2319.964	2319.252	15		835		KR	II	2321.557	2320.844	60		509	
CO	II	2319.978	2319.265	6		825		MN	II	2321.59	2320.87	1		328	
HE	I	2320.	2319.	1		126		CO	I	2321.620	2320.906	4	15.	603	
MN	II	2320.05	2319.33	8		328		CR	II	2321.65	2320.94	1	129.	340	
CO	II	2320.07	2319.36	2		825		O	III	2321.66	2320.95			108	F
CR	II	2320.09	2319.38	50	34.	340		AS	II	2321.718	2321.005	0		425	
MN	II	2320.148	2319.434	1		328		NI	II	2321.724	2321.011	30		835	
FE	III	2320.180	2319.466	150	144.	168		NI	II	2321.760	2321.047	15		835	
CU	I	2320.275	2319.561	220	22.	672		V	I	2321.786	2321.072	5		1000	
O	III	2320.289	2319.577	10		1032		CO	II	2321.93	2321.22	10		825	
N	II	2320.33	2319.62		35.	521	P	CA	III	2321.952	2321.239	25		64	
O	II	2320.39	2319.68	40		168		FE	I	2321.956	2321.243	6		896	M
NI	II	2320.463	2319.750	220	37.	835	H	AS	II	2321.962	2321.249	10		425	
V	III	2320.51	2319.83	20		325		CL	II	2321.988	2321.275	2		613	
AR	II	2320.546	2319.833	10		506		NI	I	2322.090	2321.377	300	9.	488	
CO	II	2320.55	2319.84	3		825		CR	III	2322.116	2321.403	10		893	
FE	XI	2320.6	2319.9			726	F	FE	I	2322.21	2321.50	8		896	M
N	II	2320.654	2319.941	70	16.	200		MN	II	2322.25	2321.54	1		328	
MN	II	2320.68	2319.97	3		328		AL	I	2322.275	2321.562	130	12.	198	
AS	II	2320.713	2320.000	0		425		N	II	2322.363	2321.650	70	16.	200	
NI	I	2320.738	2320.026	500	9.	488		CO	III	2322.38	2321.67	2		673	
FE	I	2320.748	2320.035	15		896	M	FE	II	2322.403	2321.690	10	183.	896	H
CR	II	2320.79	2320.08	30	19.	340		FE	III	2322.42	2321.71	250	132.	188	
V	I	2320.870	2320.156	25	32.	1000		P	II	2322.45	2321.74	10		496	
MN	II	2320.93	2320.21	15		328		FE	I	2322.468	2321.755	15		896	M
CL	II	2320.935	2320.222	2		613		V	II	2322.570	2321.855	1		478	
CR	III	2320.97	2320.26			893	F P	NI	II	2322.574	2321.861	15		835	
CO	II	2321.00	2320.29	20		825		CR	II	2322.66	2321.95	4		340	
CR	II	2321.00	2320.29	5	128.	340		NI	I	2322.666	2321.953	5	34.	488	
CU	III	2321.019	2320.306	100	20.	724		V	IV	2322.675	2321.962	1		829	
ZN	III	2321.024	2320.311	1		162		CL	II	2322.71	2322.00	2		345	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
MN	I	2322.710	2321.995	10		148		KR	II	2324.772	2324.061	4		509	
CO	II	2322.713	2322.000	2		825		NI	II	2324.808	2324.094	5		835	
AR	II	2322.794	2322.081	20		506		AL	IV	2324.84	2324.13	20		888	
V	I	2322.810	2322.096	15	31.	1000		FE	I	2324.841	2324.128	6		896	M
MN	I	2322.820	2322.106	3		148		NE	II	2324.879	2324.165	5		563	
O	II	2322.86	2322.15	25		168		V	I	2324.904	2324.189	10	95.	1000	
NE	II	2322.888	2322.175	5		563		FE	I	2324.915	2324.202	8		896	M
NI	II	2322.908	2322.195	10		835		CR	I	2324.93	2324.22	1		341	
N	III	2322.94	2322.23	1	28.0	521		NI	II	2324.986	2324.272	50		835	
V	IV	2322.972	2322.259	5		829		CO	II	2325.028	2324.314	50	8.	825	H
CO	I	2322.974	2322.260	4	15.	603		V	I	2325.062	2324.347	6	31.	1000	
MN	II	2323.04	2322.33	8		328		FE	III	2325.074	2324.359	150	156.	188	
FE	II	2323.044	2322.331	6.	183.	896	H	FE	I	2325.127	2324.414	6		896	M
AS	II	2323.258	2322.545	5		425		AR	II	2325.1407	2324.4270	30		867	
NI	I	2323.40	2322.69	10		602		CR	I	2325.17	2324.45	2		341	
MN	III	2323.475	2322.762	5		301		FE	II	2325.187	2324.473	12		896	
N	III	2323.52	2322.81	4	28.0	521		NA	III	2325.27	2324.56	0		516	
FE	I	2323.654	2322.941	10		896	M	FE	I	2325.293	2324.580	8		896	M
CR	I	2323.68	2322.97	2		341		BE	II	2325.3	2324.6			862	
CU	II	2323.7179	2323.0045	25		612		AR	II	2325.31	2324.60	5		506	
FE	I	2323.727	2323.014	8		896	M	KR	II	2325.333	2324.621	25		509	
CL	II	2323.73	2323.02	8		345		NI	I	2325.357	2324.645	10	14.	438	
B	II	2323.745	2323.031	100		532		MN	II	2325.38	2324.66	10		328	
ZN	III	2323.835	2323.124	10		162		C	II	2325.401	2324.689	84	0.0	510	H
CO	I	2323.846	2323.131	15	11.	603		O	I	2325.450	2324.738		205.	523	P
FE	I	2323.900	2323.187	8		896	M	V	I	2325.463	2324.748	40	32.	1000	
CU	III	2323.982	2323.268	2		724		MN	I	2325.518	2324.803	5		148	
F	VI	2324.02	2323.31	500		1022		FE	I	2325.529	2324.816	8		896	M
CA	III	2324.042	2323.329	15		64		O	II	2325.53	2324.82	4		168	
FE	I	2324.085	2323.372	6		896	M	CR	III	2325.602	2324.890	800	44.	893	
FE	I	2324.135	2323.422	6		896	M	KR	II	2325.636	2324.924	10		509	
P	II	2324.16	2323.45	1		496		FE	I	2325.748	2325.035	10		896	M
CL	III	2324.21	2323.50	600	10.	43		CR	II	2325.76	2325.04	1		340	
C	II	2324.211	2323.500	34	0.0	510	H	V	III	2325.78	2325.07	200	11.	791	
NI	II	2324.254	2323.541	30		835	H	N	II	2325.87	2325.16	1	16.	200	
FE	I	2324.340	2323.627	1	12.	378		FE	II	2326.009	2325.296	10	183.	896	
MN	I	2324.462	2323.748	30		148		CU	III	2326.084	2325.370	5		724	
FE	III	2324.501	2323.786	40		188		C	II	2326.113	2325.401	87	0.0	510	H
CU	II	2324.6422	2323.9286	40		612		CU	III	2326.213	2325.499	3		724	
CU	III	2324.686	2323.972	2		724		CO	I	2326.245	2325.530	12	14.	603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	II	2326.300	2325.587	8	288.	896		MN	II	2327.95	2327.23	5		328	
CO	I	2326.330	2325.615	50	63.	603		CR	I	2327.98	2327.26	3		341	
FE	I	2326.351	2325.638	6		896	M	F	VI	2328.00	2327.28	250		1022	
FE	I	2326.429	2325.715	10		896	M	MN	I	2328.024	2327.308	2		148	
FE	I	2326.477	2325.764	6		896	M	FE	II	2328.1105	2327.3962	100	3.	896	H
FE	VI	2326.48	2325.77			228	F	SC	IV	2328.170	2327.457	70		720	
NI	I	2326.506	2325.794	250	9.	488		CO	I	2328.255	2327.539	5	65.	603	
CO	I	2326.52	2325.80	6		603		CU	II	2328.2818	2327.5675	1		612	
P	II	2326.53	2325.81	0		431		MN	II	2328.35	2327.63	12		328	
V	I	2326.588	2325.873	30	31.	1000		FE	III	2328.333	2327.668	40		183	
CU	II	2326.625	2325.911	2		612		CO	II	2328.383	2327.669	20		825	
MN	II	2326.65	2325.93	30		328		CR	III	2328.455	2327.742	250		893	
O	II	2326.72	2326.01	10		168	P	ZN	III	2328.483	2327.770	10		162	
CO	II	2326.834	2326.120	40	8.	825	H	AR	II	2328.498	2327.784	20		506	
FE	I	2326.870	2326.157	6		896	M	P	II	2328.51	2327.79	00		431	
AS	II	2326.888	2326.174	50		425		FE	II	2328.590	2327.875	15		896	
CR	I	2326.93	2326.21	2		341		MN	II	2328.61	2327.90	1		328	
MN	II	2326.93	2326.22	12		328		GE	I	2328.6326	2327.9181	150	10.	7	
FE	I	2326.935	2326.221	6		896	M	FE	II	2328.675	2327.962	8	183.	896	
NI	II	2326.944	2326.230	2		835		O	II	2328.68	2327.97	10		168	
CR	II	2326.98	2326.26	3		340		V	I	2328.686	2327.970	10	31.	1000	
V	IV	2327.005	2326.291	3		829		ZN	III	2328.753	2328.040	10		162	
N	II	2327.054	2326.340	40	29.	200		F	II	2328.823	2328.108	1		538	
FE	I	2327.075	2326.362	6		896	M	ZN	III	2328.830	2328.117	5		162	
NI	II	2327.165	2326.451	50	11.	835	H	C	II	2328.835	2328.122	84	0.0	510	H
CO	II	2327.185	2326.471	40	8.	825	H	ZN	III	2328.987	2328.274	10		162	
NI	II	2327.241	2326.527	5		835		CO	I	2329.014	2328.298	6		603	
CR	II	2327.32	2326.61	3	129.	340		BR	II	2329.265	2328.552	10		606	
NI	II	2327.349	2326.635	5		835		SI	IV	2329.27	2328.56	40	35.	767	
ZN	III	2327.358	2326.646	2		162		MN	II	2329.36	2328.64	15		328	
V	V	2327.463	2326.751	60		929		B	II	2329.383	2328.668	100		532	
FE	I	2327.484	2326.770	6		896	M	MN	II	2329.45	2328.74	5		328	
FE	I	2327.524	2326.810	6		896	M	FE	I	2329.463	2328.749	10		896	M
MN	II	2327.60	2326.89	2		328		MN	II	2329.55	2328.84	30		328	
C	II	2327.642	2326.930	70	0.0	510	H	CO	I	2329.577	2328.861	10		603	
FE	III	2327.663	2326.948	250	121.	188		CO	I	2329.805	2329.089	6		603	
TI	III	2327.733	2327.019	160		227		CO	II	2329.811	2329.096	15	21.	825	
ZN	III	2327.791	2327.079	0		162		P	II	2329.83	2329.11	0		431	
CL	II	2327.82	2327.10	4		345		ZN	III	2329.916	2329.203	8		162	
MN	II	2327.87	2327.15	12		328		NE	II	2330.002	2329.288	30		563	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	III	2330.016	2329.303	150		893		O	II	2331.98	2331.27	1		168	P
AR	II	2330.072	2329.357	10		506		FE	II	2332.0234	2331.3082	100	35.	896	H
CA	III	2330.10	2329.39	25		891		TI	III	2332.067	2331.352	360		227	
MN	II	2330.24	2329.52	15		328		P	II	2332.07	2331.35	0		496	
V	I	2330.245	2329.529	30	31.	1000		CR	III	2332.076	2331.362	60		893	
NI	II	2330.268	2329.553	20		835		FE	III	2332.10	2331.38	F	72.	188	
BR	II	2330.349	2329.636	10		606		O	III	2332.10	2331.39			108	F
CR	I	2330.35	2329.63	10	40.	341		AR	II	2332.167	2331.452	80		506	
FE	I	2330.3554	2329.6406	5	12.	896		FE	III	2332.255	2331.539	25		188	
FE	III	2330.446	2329.730	10		188		TI	III	2332.37	2331.66	360		227	
LI	II	2330.551	2329.836	I		307		CO	II	2332.38	2331.67	3		825	
FE	III	2330.621	2329.905	200	72.	188		V	III	2332.39	2331.68	375	11.	791	
SI	III	2330.646	2329.931	7	87.	768		NI	I	2332.412	2331.698	10	13.	488	
NI	II	2330.652	2329.937	40		835		F	III	2332.425	2331.710	12		537	
NI	I	2330.676	2329.963	250	8.	488		NI	II	2332.475	2331.760	10		835	
F	II	2330.688	2329.973	40		538		V	III	2332.67	2331.96	2		325	
FE	II	2330.695	2329.980	5		1026		FE	II	2332.691	2331.975	15		896	
FE	I	2330.707	2329.992	15		896	M	CO	I	2332.803	2332.087	10		603	
CR	II	2330.75	2330.03	10	128.	340		KR	II	2332.814	2332.100	4		509	
V	II	2330.860	2330.144	12		478		NI	II	2332.823	2332.108	15		835	
F	II	2330.938	2330.223	10		538		MN	II	2332.856	2332.141	15		328	
MN	III	2330.942	2330.227	2		301		FE	I	2332.957	2332.241	5		896	M
DE	I	2330.95	2330.23	1		330		AR	II	2333.025	2332.310	10		506	
CR	III	2330.969	2330.256	120		893		CR	II	2333.11	2332.39	3	172.	340	
CO	II	2331.065	2330.350	40	8.	825	H	MN	II	2333.13	2332.42	2		328	
V	III	2331.09	2330.38	500	11.	791		FE	II	2333.217	2332.503	0	414.	488	
NI	II	2331.124	2330.409	30		835		S	III	2333.36	2332.64	500		285	
P	II	2331.27	2330.55	0		431		CR	I	2333.43	2332.71	1		341	
CO	II	2331.37	2330.65	10		825		SC	IV	2333.447	2332.733	160		720	
CR	III	2331.406	2330.693	90		893		FE	II	2333.5149	2332.7994	170	3.	896	H
CR	I	2331.43	2330.71	8		341		SE	I	2333.52	2332.81	150	21.	600	
MN	III	2331.43	2330.72	7		301		CO	II	2333.56	2332.85	15		825	
N	II	2331.570	2330.855	20		200	N	AR	II	2333.608	2332.895	10		506	
MN	II	2331.58	2330.86	2		328		CL	II	2333.62	2332.90	4		345	
FE	II	2331.772	2331.057	5	183.	896		SC	IV	2333.634	2332.920	110		720	
MN	III	2331.800	2331.085	7		301		NI	II	2333.686	2332.970	5		935	
FE	I	2331.803	2331.088	1	108.	378		F	II	2333.689	2332.974	25		538	
FE	I	2331.827	2331.112	6		896	M	CR	I	2333.70	2332.98	7	40.	341	
NI	II	2331.836	2331.121	40		835		AR	II	2333.752	2333.036	20		506	
FE	I	2331.888	2331.172	8		896	M	CO	I	2333.788	2333.071	6	15.	603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	III	2333.801	2333.087	350	44.	893		CR	II	2335.55	2334.83	10	47.	340	
FE	I	2333.948	2333.232	15		896	M	F	II	2335.555	2334.839	10		538	
MN	II	2333.95	2333.23	10		328		CO	II	2335.598	2334.882	9		825	
S		2334.	2333.			107	N	FE	II	2335.612	2334.896	6		896	
CR	I	2334.05	2333.33	8	40.	341		MN	II	2335.640	2334.924	20		328	
V	I	2334.05	2333.33	20	31.	1000		F	II	2335.660	2334.944	25		538	
CR	II	2334.18	2333.46	25	47.	340		V	III	2335.67	2334.96	10		325	
ZN	III	2334.350	2333.636	5		162		FE	I	2335.741	2335.024	6		896	M
FE	II	2334.424	2333.708	10		896		NI	II	2335.816	2335.100	15		835	
CU	II	2334.459	2333.743	2		612		CO	I	2335.819	2335.102	15	6.	603	
F	II	2334.513	2333.797	90		538		CA	III	2335.842	2335.126	3		64	
CR	II	2334.56	2333.84	12	47.	340		V	II	2335.921	2335.204	2	44.	478	
CR	VI	2334.59	2333.87		47.	340		SC	IV	2336.003	2335.288	220		720	
NI	II	2334.599	2333.883	1		835		V	II	2336.044	2335.326	10	44.	478	
P	II	2334.66	2333.95	4		496		CR	III	2336.051	2335.336	250		893	
CO	I	2334.697	2333.980	3		603		V	II	2336.198	2335.480	40	55.	478	
CO	II	2334.77	2334.06	15		825		P	II	2336.40	2335.68	00		431	
CO	I	2334.83	2334.12	5		603		FE	I	2336.418	2335.702	8		896	M
F	II	2334.842	2334.126	60		538		ZN	III	2336.428	2335.713	1		162	
V	III	2334.87	2334.16	375	11.	791		FE	II	2336.474	2335.757	0		645	
CR	II	2334.89	2334.17	8	47.	340		BE	IV	2336.613	2335.897			309	
CR	II	2334.96	2334.24	7	47.	340		C	IV	2336.7	2335.9	25	21.	35	
ZN	III	2334.965	2334.250	0		162		CO	I	2336.72	2336.00	10	11.	603	
FE	I	2335.037	2334.321	8		896	M	V	II	2336.816	2336.098	30	57.	478	
TI	III	2335.056	2334.340	360		227		CU	II	2336.8975	2336.1713	40	177.	612	
CR	II	2335.09	2334.37	8	47.	340		CO	II	2336.942	2336.226	40	8.	825	H
SI	II	2335.120	2334.404	30	0.01	678		AR	II	2336.985	2336.269	10		506	
CR	II	2335.13	2334.41	2	47.	340		S	III	2337.10	2336.38	600		285	
V	I	2335.151	2334.434	40	31.	1000		CR	II	2337.14	2336.42	3	120.	340	
CR	II	2335.17	2334.45	5	47.	340		CL	III	2337.17	2336.45	500	10.	43	
BR	II	2335.190	2334.475	100		606		ZN	II	2337.208	2336.493	2		154	
F	II	2335.196	2334.480	40		538		CR	III	2337.212	2336.497	90		893	
TI	II	2335.25	2334.54	30		601		BE	I	2337.22	2336.50	3		330	
CR	II	2335.30	2334.58	10	47.	340		NI	II	2337.341	2336.625	30	27.	835	
NI	II	2335.300	2334.584	220	20.	835	H	NI	II	2337.428	2336.712	100	50.	835	H
SI	II	2335.322	2334.606	30	0.01	678		SI	II	2337.446	2336.730	2	37.	678	
CR	II	2335.34	2334.62	5		340		FE	III	2337.485	2336.768	250	121.	188	
P	IV	2335.349	2334.633	25		937		FE	II	2337.540	2336.824	6		896	
FE	I	2335.442	2334.726	12		896	M	LI	II	2337.591	2336.875	60		307	
MN	II	2335.49	2334.77	0		328		LI	II	2337.626	2336.910	100		307	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
BR	II	2337.650	2336.934	600		606		CO	I	2339.766	2339.048	4	12.	603	
CO	II	2337.705	2336.989	25		825		AR	II	2339.78	2339.06	0		506	
LI	II	2337.713	2336.997	40		307		ZN	III	2339.875	2339.159	0		162	
V	III	2337.80	2337.08	375	11.	791		NI	II	2339.957	2339.240	1		835	
NI	I	2337.802	2337.087	5	29.	488		CR	I	2339.99	2339.27	15	40.	341	
CA	III	2337.972	2337.255	3		64		ZN	III	2340.011	2339.295	2		162	
NI	II	2337.985	2337.268	1		835		O	II	2340.10	2339.38	25		168	P
CO	II	2338.05	2337.33	7		825		FE	II	2340.125	2339.408	8	105.	896	H
CO	I	2338.195	2337.477	4		603		FE	I	2340.226	2339.508	4		896	M
NI	I	2338.200	2337.484	250	8.	488		V	IV	2340.265	2339.548	20		829	
ZN	III	2338.343	2337.627	1		162		CO	I	2340.268	2339.550	5	62.	603	
ZN	IV	2338.359	2337.627	6		154		FE	I	2340.362	2339.645	40		896	M
CR	II	2338.46	2337.74	20	128.	340		V	I	2340.391	2339.673	20	31.	1000	
FE	I	2338.479	2337.762	4		896	M	CR	I	2340.43	2339.71	4	40.	341	
AR	II	2338.497	2337.780	60		506		CU	II	2340.4452	2339.7281	10		612	
NI	I	2338.530	2337.814	5	32.	488		NE	II	2340.462	2339.745	40		563	
CR	I	2338.54	2337.82	4		341		MN	II	2340.47	2339.75	2		328	
CO	II	2338.63	2337.91	50		825		AR	II	2340.512	2339.795	40		506	
CO	I	2338.67	2337.95	3	14.	603		FE	I	2340.600	2339.882	10		896	M
MN	II	2338.674	2337.956	30		328		CR	II	2340.62	2339.90	1		340	
V	II	2338.674	2337.956	4	55.	478		MN	III	2340.622	2339.905	5	15.	301	
FE	II	2338.7237	2338.0070	140	3.	896	H	CO	I	2340.63	2339.92	M		603	
V	IV	2338.749	2338.032	10		829		FE	III	2340.631	2339.913	60	151.	188	
FE	I	2338.864	2338.147	6		896	M	KR	II	2340.661	2339.945	25		509	
MN	II	2338.943	2338.225	10		328		MN	II	2340.71	2340.00	2		328	
V	III	2338.95	2338.23	2		325		NE	II	2340.777	2340.060	10		563	
NI	II	2338.950	2338.233	30		835		V	IV	2340.857	2340.140	10		829	
CR	II	2338.99	2338.27	1		340		FE	II	2341.068	2340.352	5	344.	488	
CR	I	2339.06	2338.34	2		341		FE	II	2341.180	2340.462	10	166.	896	H
NI	I	2339.209	2338.493	10	30.	488		V	I	2341.197	2340.479	50	31.	1000	
FE	III	2339.31	2338.59	40		188		CR	III	2341.202	2340.486	500		893	
GE	I	2339.3228	2338.6060	40		7		NI	III	2341.30	2340.57	1	23.	661	
CA	III	2339.371	2338.654	7		64		MN	II	2341.304	2340.586	30		323	
CO	I	2339.374	2338.656	10	11.	603		CL	II	2341.32	2340.60	4		345	
CO	II	2339.433	2338.716	15		825		CR	III	2341.34	2340.62			893	F P
ZN	III	2339.435	2338.719	0		162		CL	III	2341.36	2340.64	600	19.	43	
FE	III	2339.679	2338.961	250	72.	188		V	IV	2341.421	2340.704	5		829	
V	III	2339.68	2338.96	2		325		FE	II	2341.656	2340.939	5	166.	488	H
TI	III	2339.717	2339.000	460		227		CO	I	2341.71	2340.99	5		603	
CO	II	2339.75	2339.03	15		825		CO	II	2341.835	2341.118	50		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	I	2341.89	2341.17	20	40.	341		GE	IV	2344.09	2343.37	2		406	
MN	II	2341.89	2341.17	20		328		NI	II	2344.099	2343.381	3		835	
FE	II	2341.892	2341.174	12		896		BR	II	2344.166	2343.449	250		606	
NI	II	2341.919	2341.202	220	50.	835	H	NI	II	2344.209	2343.491	140	37.	835	
MN	III	2341.943	2341.226	10	15.	301		FE	II	2344.2121	2343.4941	240	3.	896	H
TI	II	2341.95	2341.23	30		601		MN	II	2344.37	2343.65	1		328	
V	II	2342.077	2341.358	4	56.	478		CR	I	2344.40	2343.68	4		341	
CU	II	2342.0893	2341.3719	2		612		AS	II	2344.415	2343.697	3		425	
MN	XI	2342.1	2341.4			726	F	CA	III	2344.514	2343.796	1		64	
FE	II	2342.162	2341.444	1		1026		NI	II	2344.665	2343.947	20	58.	835	
FE	I	2342.170	2341.452	25		896	M	FE	II	2344.6780	2343.9600	80	35.	896	H
CA	III	2342.263	2341.546	1		64		AS	I	2344.75	2344.03	50	17.	480	
FE	I	2342.293	2341.575	1	13.	605		CR	I	2344.7C	2344.04	1		341	
FE	I	2342.366	2341.648	15		896	M	MN	III	2344.84	2344.13	3		301	
CO	I	2342.503	2341.784	4		603		FE	I	2344.872	2344.154	25		896	M
AS	II	2342.579	2341.862	0		425		SI	II	2344.921	2344.203	10	0.01	678	
FE	II	2342.670	2341.953	5	314.	488		AR	II	2344.922	2344.204	60		506	
MN	I	2342.806	2342.088	3		148		CO	II	2344.980	2344.262	20	8.	825	
CR	I	2342.83	2342.11	5		341		FE	II	2344.9990	2344.2809	125	3.	896	H
V	III	2342.84	2342.12	20		325		MN	II	2345.057	2344.338	20		328	
V	II	2342.861	2342.142	60	55.	478		CR	I	2345.06	2344.34	1		341	
CU	II	2342.890	2342.173	5		612		MN	II	2345.10	2344.38	5		328	
FE	II	2342.955	2342.238	20	104.	488	H	KR	II	2345.102	2344.384	150		509	
CO	II	2342.97	2342.25	6		825		CR	II	2345.26	2344.54	20	203.	340	
K	II	2343.02	2342.30	40		468	N	FE	I	2345.320	2344.602	30		896	M
FE	I	2343.025	2342.309	5		896	M	CO	II	2345.345	2344.627	25		825	
TI	II	2343.03	2342.31	30		601		AR	II	2345.463	2344.745	5		506	
CO	II	2343.11	2342.39	2		825		BR	II	2345.64	2344.92	1		606	
CR	III	2343.174	2342.457	300	44.	893		FE	II	2345.702	2344.984	25		896	
MN	I	2343.190	2342.471	1		148		AS	II	2345.719	2345.000	0		425	
CR	I	2343.26	2342.54	3		341		FE	I	2345.736	2345.018	1		378	
AS	II	2343.474	2342.757	1		425		O	III	2345.763	2345.045	1		1032	
CO	I	2343.512	2342.793	2		603		AR	III	2345.89	2345.17	90	10.	488	
MN	II	2343.52	2342.80	1		328		FE	II	2345.895	2345.177	1	287.	488	
FE	I	2343.606	2342.888	10		896	M	ZN	III	2345.935	2345.217	0		162	
SC	IV	2343.853	2343.136	40		720		CR	II	2345.97	2345.25	15	34.	340	
CO	II	2343.94	2343.22	1		825		CU	III	2345.971	2345.253	3		724	
MN	III	2343.99	2343.28	10		301		NI	II	2345.985	2345.267	140	58.	835	
FE	I	2344.025	2343.307	25		896	M	FE	II	2346.057	2345.339	50	165.	896	H
CO	II	2344.05	2343.33	10		825		CR	II	2346.07	2345.35	25	34.	340	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
BR	II	2346.096	2345.378	1		606		CU	II	2347.37	2346.65	0		670	
NI	II	2346.160	2345.442	50	11.	835		FE	I	2347.400	2346.681	12		896	M
CO	II	2346.212	2345.494	20		825		ZN	II	2347.403	2346.685	20		154	
ZN	III	2346.218	2345.500	2		162		CU	III	2347.493	2346.774	10		724	
AR	II	2346.22	2345.50	10		506		TI	III	2347.505	2346.786	520		227	
CR	II	2346.25	2345.53	2		340		V	III	2347.57	2346.85	2		325	
NI	I	2346.257	2345.539	150	6.	488		F	II	2347.576	2346.857	25		538	
FE	I	2346.287	2345.568	15		896	M	BR	II	2347.582	2346.863	150		606	
F	III	2346.344	2345.626	12		537		V	II	2347.588	2346.868	25	54.	478	
MN	III	2346.346	2345.628	5		301		MN	III	2347.638	2346.919	5	15.	301	
CR	III	2346.426	2345.708	90		893		FE	II	2347.644	2346.926	0	379.	488	
F	III	2346.467	2345.749	1		537		F	II	2347.662	2346.943	1		538	
MN	II	2346.55	2345.83	0		328		FE	III	2347.681	2346.961	25	72.	188	
P	II	2346.57	2345.85	00		431		V	I	2347.746	2347.026	10	31.	1000	
AR	II	2346.58	2345.86	0		506		V	III	2347.78	2347.06	150	11.	791	
CR	I	2346.63	2345.91	1		341		CR	II	2347.80	2347.08	2	10.	340	
MN	II	2346.70	2345.98	0		328		F	II	2347.832	2347.113	4		538	
F	III	2346.74	2346.02	1		537		CO	II	2347.833	2347.114	15		825	
MN	I	2346.846	2346.126	1		148		AS	II	2347.925	2347.206	0		425	
CU	III	2346.877	2346.159	170	20.	724		F	III	2348.064	2347.345	1		537	
CO	I	2346.881	2346.161	7	12.	603		CO	II	2348.114	2347.395	50	8.	825	H
CU	III	2346.917	2346.198	170		724		FE	II	2348.131	2347.411	0		645	
SI	II	2346.952	2346.234	0	15.01	678		TI	II	2348.18	2347.46	20	18.	488	
SC	IV	2346.956	2346.238	70		720		MN	III	2348.184	2347.465	3		301	
FE	II	2346.989	2346.271	5	379.	468		CU	III	2348.189	2347.470	3		724	
FE	II	2346.989	2346.271	5	314.	488		V	III	2348.21	2347.49	5		325	
V	III	2347.00	2346.28	150	11.	791		NI	I	2348.226	2347.507	75	5.	488	
FE	I	2347.022	2346.304	1	12.	378		V	II	2348.228	2347.507	8	55.	478	
TI	II	2347.07	2346.35	10	18.	488		CO	I	2348.377	2347.657	4	10.	603	
FE	I	2347.072	2346.354	25		896	M	ZN	III	2348.393	2347.674	20		162	
MN	I	2347.103	2346.383	2		148		CL	III	2348.4	2347.7	200		43	
MN	I	2347.217	2346.497	5	35.	148		FE	I	2348.497	2347.778	10		896	M
FE	II	2347.226	2346.508	1	379.	488		CO	II	2348.53	2347.91	20		825	
SC	III	2347.238	2346.520	12		855		MN	II	2348.57	2347.85	1		328	
CR	I	2347.25	2346.53	3		341		CU	II	2348.61	2347.89	0		670	
MN	II	2347.25	2346.53	2		328		CO	II	2348.63	2347.91	12		825	
AR	II	2347.289	2346.570	20		506		CR	III	2348.729	2348.010	150		893	
CO	II	2347.29	2346.57	30		825		CO	II	2348.73	2348.01	3		825	
FE	I	2347.334	2346.615	30		896	M	MN	II	2348.82	2348.10	1		328	
NI	I	2347.346	2346.628	20	12.	488		FE	II	2348.832	2348.113	140	36.	896	H

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	II	2348.87	2348.14	0		328		FE	II	2350.897	2350.178	12	379.	896	H
V	III	2348.94	2348.22	150	11.	791		CU	II	2350.9102	2350.1908	3		612	
CR	II	2348.97	2348.25	3		340		FE	I	2350.967	2350.247	15		896	M
ZN	III	2349.007	2348.288	20		162		F	III	2350.969	2350.250	30		537	
FE	II	2349.019	2348.299	155	3.	896	H	NI	II	2350.988	2350.269	3		835	
CU	I	2349.072	2348.352	2		672		CL	IX	2351.0	2350.3			111	
CO	II	2349.09	2348.37	9		825		CO	I	2351.005	2350.284	12	63.	603	
CO	II	2349.18	2348.46	1	M	825		V	III	2351.06	2350.34	1		325	
CR	I	2349.18	2348.46	1		341		MN	I	2351.072	2350.352	10	35.	148	
BE	I	2349.329	2348.610	650.	1.	333		CR	I	2351.12	2350.40	12	40.	341	
CU	II	2349.4527	2348.7336	15	133.	612		FE	I	2351.1302	2350.4107	8	11.	896	
NI	I	2349.453	2348.734	10	32.	488		AR	II	2351.205	2350.486	50		506	
CO	II	2349.52	2348.80	1		825		MN	III	2351.242	2350.523	15	15.	301	
MN	II	2349.55	2348.83	30		328		FE	II	2351.243	2350.523	8		896	
CO	III	2349.56	2348.80	1		673		CO	I	2351.317	2350.596	6		603	
AR	II	2349.629	2348.910	10		506		FE	I	2351.346	2350.626	1		378	
CR	I	2349.64	2348.92	25	40.	341		BE	I	2351.381	2350.661	15		333	
ZN	III	2349.717	2348.998	0		162		TI	II	2351.39	2350.67	20	18.	488	
CR	I	2349.78	2349.06	1		341		BE	I	2351.423	2350.703	40		333	
CO	II	2349.874	2349.155	5		825		CR	I	2351.54	2350.82	1		341	
NI	II	2349.895	2349.176	50		835		BE	I	2351.549	2350.829	80		333	
MN	II	2349.949	2349.231	15		328		NE	IV	2351.56	2350.84	350		1024	
MN	I	2349.983	2349.263	3		148		NI	II	2351.565	2350.845	10	19.	835	
FE	I	2349.988	2349.268	30		896	M	ZN	III	2351.622	2350.905	5		162	
F	III	2350.023	2349.304	4		537		CO	II	2351.879	2351.159	20		825	
NI	II	2350.050	2349.331	3		835		FE	II	2351.920	2351.201	50	165.	896	H
AR	II	2350.23	2349.51	5		506		NI	II	2351.923	2351.204	1		835	
SI	II	2350.26	2349.54	10	36.	678		V	II	2351.96	2351.24	6		478	
NI	II	2350.299	2349.580	1		935		SC	IV	2352.062	2351.344	160		720	
SE	III	2350.52	2349.80	50		597		CA	III	2352.073	2351.353	250		85	
CR	I	2350.55	2349.83	4		341		CO	I	2352.105	2351.385	10	13.	603	
AS	I	2350.56	2349.84	500	6.	480		ZN	III	2352.148	2351.430	3		162	
NI	II	2350.641	2349.922	30		835		FE	I	2352.327	2351.607	6		896	M
TI	II	2350.69	2349.97	30	18.	408		CR	III	2352.384	2351.666	60		893	
NI	II	2350.710	2349.991	60		835		FE	II	2352.386	2351.666	15	379.	896	
CR	II	2350.72	2350.00	2	220.	340		CO	II	2352.4	2351.7		M	825	
ZN	II	2350.767	2350.050	3		154		CO	II	2352.559	2351.839	30		325	
CR	II	2350.86	2350.14	1	10.	340		FE	I	2352.604	2351.884	1	12.	378	
NI	II	2350.866	2350.147	3		835		V	IV	2352.653	2351.934	5		829	
SI	II	2350.893	2350.174	20	0.01	678		FE	II	2352.679	2351.958	0		645	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2352.68	2351.96	4	293.	340		CU	II	2354.6645	2353.9443	3		612	
GE	II	2352.693	2351.973	5		676		MN	I	2354.741	2354.020	4		148	
CO	I	2352.70	2351.98	4		603		CR	II	2354.77	2354.05	3	10.	340	
NI	II	2352.768	2352.048	75		835	H	TI	II	2354.84	2354.12	30		601	
V	II	2352.898	2352.177	100	55.	478		AR	II	2354.8520	2354.1317	60		867	
CO	II	2352.928	2352.208	20		825		CO	I	2354.90	2354.18	2		603	
NI	II	2352.946	2352.226	1		835		CR	I	2355.02	2354.30	15	40.	341	
CU	II	2353.0115	2352.2916	3		612		CO	I	2355.13	2354.41	5		603	
FE	II	2353.029	2352.309	25	379.	896		FE	II	2355.198	2354.477	50	165.	896	H
AS	II	2353.126	2352.406	3		425		P	II	2355.20	2354.48	0		431	
CO	II	2353.2	2352.5	M		825		CR	II	2355.31	2354.59	3	203.	340	
NE	IV	2353.24	2352.52	600		1024		TI	II	2355.33	2354.61	10	18.	488	
FE	III	2353.337	2352.616	25		188		CR	II	2355.36	2354.64	3	10.	340	
CR	III	2353.416	2352.698	200		893		V	II	2355.377	2354.656	20	43.	478	
AR	II	2353.451	2352.731	20		506		MN	III	2355.381	2354.661	15	15.	301	
CO	I	2353.585	2352.864	15	60.	603		AR	II	2355.513	2354.793	10		506	
KR	II	2353.592	2352.874	120		509		NI	III	2355.53	2354.81	0	23.	661	
CR	I	2353.65	2352.93	5		341		CU	I	2355.546	2354.825	2		672	
MN	I	2353.658	2352.937	20	35.	148		CU	III	2355.568	2354.848	10		724	
N	VII	2353.7	2353.0			309		NI	III	2355.60	2354.88	3		661	
NI	II	2353.727	2353.007	10		835		FE	II	2355.610	2354.889	40	35.	896	H
SI	II	2353.81	2353.09	20	35.	678		MN	II	2355.63	2354.91	2	38.	328	
V	II	2353.83	2353.16	1		478		NI	II	2355.643	2354.922	5		835	
S		2354.	2353.			107	N	CR	I	2355.65	2354.93	1		341	
CR	II	2354.01	2353.29	3	10.	340		CU	II	2355.7354	2355.0149	35	77.	612	
CO	I	2354.08	2353.36	10	11.	603		NI	I	2355.769	2355.050	50	31.	488	
NI	II	2354.111	2353.391	2		835		CR	II	2355.82	2355.10	3	203.	340	
AR	II	2354.146	2353.426	30		506		NI	II	2355.867	2355.147	10		835	
CO	II	2354.146	2353.426	40	8.	825	H	TI	II	2355.89	2355.17	20	18.	488	
CR	II	2354.16	2353.44	3	10.	340		FE	II	2355.936	2355.216	12	165.	896	
FE	II	2354.190	2353.469	30		896		V	II	2355.953	2355.232	4	25.	478	
NI	II	2354.248	2353.528	1		835		CR	III	2356.044	2355.325	250		893	
CR	II	2354.26	2353.54	1		340		N	II	2356.047	2355.328		18.0	521	P
FE	I	2354.328	2353.607	40		896	M	FE	I	2356.0545	2355.3340	40	11.	896	
V	IV	2354.359	2353.639	3		829		CA	III	2356.064	2355.344	3		64	
CU	III	2354.372	2353.652	10		724		FE	II	2356.070	2355.351	40	379.	488	
FE	II	2354.399	2353.678	15	379.	896		V	I	2356.163	2355.441	1		1000	
KR	II	2354.418	2353.700	250		509		CO	I	2356.202	2355.480	30	11.	603	
SE	III	2354.47	2353.75	30		587		ZN	III	2356.204	2355.485	2		162	
FE	III	2354.541	2353.820	40		188		CO	II	2356.21	2355.49	2		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
F	III	2356.263	2355.542	4		537		MN	III	2358.529	2357.808	5		301	
CO	I	2356.333	2355.611	7	63.	603		V	II	2358.532	2357.810	60	187.	478	
CR	II	2356.34	2355.62	3	293.	340		TI	II	2358.54	2357.82	20	18.	488	
MN	II	2356.37	2355.66	3	38.	328		MN	I	2358.566	2357.899	2		148	
TI	II	2356.58	2355.86	10	18.	488		S	III	2358.64	2357.92	300		285	
FE	I	2356.637	2355.915	1	12.	605		NE	IV	2358.68	2357.96	1000		1024	
SC	IV	2356.683	2355.964	160		720		SI	II	2358.69	2357.97	50	35.	678	
CR	I	2356.70	2355.98	1		341		NI	II	2358.775	2358.054	2		835	
NI	II	2356.734	2356.013	75		835		CO	I	2358.899	2358.177	20	11.	603	
FE	I	2356.917	2356.196	1		378		AR	II	2358.91	2358.19	5		506	
V	II	2356.931	2356.209	3		478		CO	II	2358.916	2358.195	40		825	
AS	II	2356.9747	2356.2539	5		425		NI	II	2358.929	2358.208	1		835	
CO	I	2356.989	2356.267	10	10.	603		FE	II	2358.958	2358.236	0		645	
MN	III	2356.993	2356.272	10	15.	301		ZN	III	2359.078	2358.358	10		162	
SI	II	2357.016	2356.295	100	35.	678		AS	II	2359.095	2358.373	0		425	
ZN	III	2357.068	2356.349	1		162		AR	II	2359.129	2358.408	20		506	
V	IV	2357.090	2356.369	10		829		MN	II	2359.169	2358.448	50	38.	328	
NI	II	2357.124	2356.403	100	22.	835	H	CO	I	2359.398	2358.676	10	6.	603	
CR	II	2357.30	2356.58	4	208.	340		V	III	2359.42	2358.70	900	15.	791	
V	IV	2357.345	2356.624	5		829		FE	I	2359.488	2358.767	6		896	M
CA	III	2357.353	2356.632	15		64		CU	III	2359.496	2358.775	3		724	
CU	II	2357.3616	2356.6408	20	13.	612		CR	II	2359.54	2358.82	5	148.	340	
CO	II	2357.40	2356.68	7		825		NI	I	2359.573	2358.853	40	29.	483	
AR	II	2357.432	2356.711	10		506		FE	I	2359.605	2358.884	20		896	M
CO	II	2357.50	2356.78	M		825		FE	I	2359.673	2358.951	50		896	M
MN	II	2357.512	2356.790	20	38.	328		MN	III	2359.77	2359.05	3	15.	301	
NI	I	2357.583	2356.864	50	30.	488		CO	II	2359.78	2359.06	8		825	
N	II	2357.62	2356.90	1	49.	200		FE	II	2359.831	2359.111	285	165.	483	H
CR	II	2357.68	2356.96	5	46.	340		FE	II	2359.840	2359.118	140	165.	896	H
FE	II	2357.724	2357.005	40	379.	488	H	FE	II	2359.840	2359.118	140	3.	896	H
FE	II	2357.724	2357.005	40	333.	488	H	FE	II	2359.840	2359.118	140	379.	896	H
FE	I	2357.769	2357.048	10		896	M	TI	IV	2359.863	2359.142	250		721	
CU	III	2357.881	2357.160	1		724		BR	II	2359.880	2359.160	50		606	
SI	II	2357.90	2357.18	30	35.	678		S	III	2359.93	2359.21	200		285	
MN	II	2357.95	2357.23	1		328		GE	I	2359.9540	2359.2326	40		7	
SE	II	2358.20	2357.48	10		468		MN	II	2360.108	2359.386	20	38.	328	
CO	I	2358.229	2357.507	10	114.	603		CO	II	2360.19	2359.47	25		825	
V	II	2358.254	2357.532	3		478		MN	II	2360.19	2359.47	30	38.	328	
AR	II	2358.310	2357.589	50		506		TI	IV	2360.220	2359.499	250		721	
MN	II	2358.418	2357.686	30	38.	328		FE	II	2360.317	2359.595	15	165.	896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CL	III	2360.39	2359.67	600	24.	43		ZN	III	2361.927	2361.206	12		162	
CA	III	2360.40	2359.68	1		891		AR	II	2361.970	2361.248	5		506	
ZN	III	2360.469	2359.749	5		162		B	V	2361.99	2361.27			309	
MN	II	2360.534	2359.815	15		328		CR	II	2362.03	2361.31	1	46.	340	
NI	II	2360.538	2359.816	1		835		FE	II	2362.092	2361.371	1	270.	488	
CA	III	2360.55	2359.83	1		891		CO	II	2362.235	2361.513	30	8.	825	
CO	II	2360.57	2359.85	10		825		CU	III	2362.308	2361.586	170		724	
NI	II	2360.583	2359.862	100		835		CR	I	2362.31	2361.59	2		341	
F	III	2360.670	2359.949	50		537		ZN	II	2362.409	2361.688	6		154	
FE	II	2360.719	2359.997	125	35.	896	H	ZN	III	2362.409	2361.688	6		162	
AR	II	2360.7808	2360.0592	40		867		AS	II	2362.441	2361.719	125		425	
MN	II	2360.822	2360.099	30	38.	328		FE	II	2362.449	2361.728	40	165.	488	
CR	II	2360.86	2360.14	10	208.	340		FE	II	2362.449	2361.728	40	379.	488	
ZN	III	2360.873	2360.153	3		162		MN	II	2362.491	2361.768	80	38.	328	
CU	III	2360.884	2360.162	20		724		AS	IV	2362.50	2361.78	50		584	
SI	II	2360.94	2360.20	10	36.	678		CR	II	2362.51	2361.79	3	220.	340	
MN	II	2360.957	2360.234	30	38	328		AR	II	2362.542	2361.820	10		506	
FE	III	2361.01	2360.28	121.	121.	168		FE	I	2362.658	2361.936	1		378	
FE	II	2361.014	2360.293	110	36.	896	H	V	III	2362.68	2361.96	15		325	
V	II	2361.057	2360.334	50	43	478		CR	II	2362.72	2362.00	1	111.	340	
NI	II	2361.118	2360.396	1		835		FE	II	2362.742	2362.020	40	35.	896	H
FE	I	2361.133	2360.411	30		896	M	F	III	2362.765	2362.043	12		537	
CO	II	2361.231	2360.509	50		825		NI	I	2362.791	2362.070	50	5.	488	
FE	II	2361.233	2360.511	30		896		AR	II	2362.805	2362.083	10		506	
SI	II	2361.31	2360.59	5	35.	678		AS	II	2362.805	2362.083	1		425	
NI	I	2361.353	2360.633	50	10.	488		NI	II	2362.833	2362.111	5		835	
CU	II	2361.3612	2360.6394	1		612		CR	I	2362.91	2362.19	15		341	
CR	II	2361.47	2360.75	8	46.	340		CR	II	2362.98	2362.26	2	111.	340	
NI	II	2361.488	2360.766	2		835		MN	II	2363.029	2362.307	5		328	
AR	II	2361.499	2360.777	5		506		CO	I	2363.050	2362.327	8	62.	603	
CO	I	2361.512	2360.789	9	116.	603		NI	II	2363.073	2362.351	1		835	
CO	II	2361.512	2360.790	20		825		MN	III	2363.08	2362.36	10	15.	301	
CR	II	2361.61	2360.89	6	46.	340		FE	III	2363.124	2362.401	25		188	
AS	II	2361.624	2360.902	0		425		SC	IV	2363.151	2362.430	70		720	
FE	I	2361.731	2361.009	12		896	M	NI	II	2363.249	2362.527	1		835	
MN	III	2361.760	2361.038	3		301		FE	I	2363.346	2362.624	1		378	
CR	II	2361.81	2361.09	1	46.	340		V	II	2363.355	2362.632	20	185.	478	
CO	II	2361.852	2361.130	15		825		NE	IV	2363.40	2362.68	350		1024	
S	III	2361.89	2361.17	200		265		CU	II	2363.4037	2362.6815	3		612	
CU	II	2361.9126	2361.1907	3		612		MN	I	2363.442	2362.719	1		148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
KR	II	2363.473	2362.752	150		509		TI	I	2365.77	2365.05	10	13.	488	
AR	II	2363.588	2362.866	10		506		SI	II	2365.78	2365.06	2	36.	678	
NI	III	2363.71	2362.98	2		661		CO	I	2365.781	2365.057	18	6.	603	
AS	I	2363.78	2363.05	10	5.	480		CR	I	2365.85	2365.13	5	39.	341	
CU	I	2363.943	2363.220	5		672		CR	II	2365.87	2365.15	4	111.	340	
CU	III	2363.957	2363.234	100		724		NE	II	2365.876	2365.153	70	.	563	
NE	IV	2364.00	2363.28	350		1024		NI	III	2365.90	2365.17	10	23.	661	
CR	II	2364.04	2363.32	1		340		CL	II	2365.965	2365.242	1	.	613	
FE	III	2364.23	2363.51	120		188		CR	II	2365.98	2365.26	20	203.	340	
FE	II	2364.362	2363.641	5	165.	488		ZN	III	2366.009	2365.287	5		162	
CR	II	2364.37	2363.65	3	111.	340		FE	I	2366.017	2365.294	10		896	M
NI	II	2364.371	2363.649	1		835		NE	III	2366.10	2365.38	200		1031	M
CO	II	2364.518	2363.796	6	8.	825	H	NI	II	2366.103	2365.383	2		835	
AR	II	2364.522	2363.800	5		506		MN	III	2366.136	2365.413	20	15.	301	
FE	II	2364.532	2363.811	40	270.	488		NE	IV	2366.21	2365.49	150		1024	
MN	I	2364.546	2363.823	4		148		FE	I	2366.233	2365.509	1	107.	605	
MN	II	2364.55	2363.83	1		328		NI	II	2366.299	2365.576	100	.	835	
FE	II	2364.582	2363.860	60	379.	896		NI	I	2366.379	2365.657	5	8.	488	
HE	I	2364.6	2363.9	6		126		KR	II	2366.399	2365.677	200		509	
MN	I	2364.679	2363.956	1		148		N	II	2366.42	2365.70		18.	521	P
CR	II	2364.74	2364.02	10	10.	340		NE	III	2366.46	2365.74	120		1031	M
N	II	2364.76	2364.04	1	48.	200		NI	II	2366.462	2365.739	15		835	
AR	II	2364.835	2364.112	50		506		FE	II	2366.487	2365.764	80		896	
CU	II	2364.8769	2364.1544	10		612		AS	II	2366.568	2365.845	5		425	
ZN	III	2364.908	2364.187	2		162		CR	I	2366.63	2365.91	125	1.	341	
CO	I	2364.974	2364.251	3		603		NI	III	2366.70	2365.97	8	23.	661	
NI	II	2365.027	2364.305	50		835		FE	II	2366.762	2366.040	1	287.	488	
SI	II	2365.05	2364.33	3	35.	678		CO	I	2366.770	2366.046	5		603	
V	II	2365.113	2364.390	2		478		SI	I	2366.776	2366.053	5	18.01	678	
V	IV	2365.235	2364.512	1		829		CR	I	2366.86	2366.14	25	40.	341	
KR	II	2365.362	2364.640	1		509		KR	II	2366.872	2366.150	40		509	
CR	III	2365.410	2364.688	150		893		ZN	III	2366.879	2366.157	3		162	
FE	I	2365.433	2364.710	12		896	M	CR	II	2366.97	2366.28	1		340	
CR	I	2365.45	2364.73	150	1.	341		V	III	2366.99	2366.27	900	15.	791	
AS	II	2365.506	2364.783	0		425		CR	I	2367.03	2366.31	50	39.	341	
FE	II	2365.549	2364.826	140	3.	896	H	V	II	2367.214	2366.490	25	25.	478	
CO	II	2365.55	2364.83	3		825		NI	II	2367.265	2366.542	100	36.	835	
FE	I	2365.631	2364.908	10		896	M	MN	I	2367.299	2366.575	1		148	
NE	II	2365.699	2364.976	50		563		FE	II	2367.315	2366.591	25	35.	896	H
CR	II	2365.70	2364.98	2		340		MN	I	2367.468	2366.744	5		148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2367.47	2366.75	5	34.	340		CR	I	2369.21	2368.49	12	39.	341	
SI	IV	2367.478	2366.755	40	31.	767		TI	I	2369.29	2368.57	20	13.	488	
AR	II	2367.501	2366.778	20	.	506		TI	I	2369.29	2368.57	20	12.	488	
CR	I	2367.53	2366.81	100	1.	341		FE	II	2369.319	2368.595	80	36.	896	H
F	III	2367.543	2366.820	12		537		CO	II	2369.33	2368.60	1		825	
CR	II	2367.56	2366.84	35	34.	340		AR	II	2369.335	2368.612	10		506	
FE	II	2367.586	2366.864	5	2.	488		MN	II	2369.62	2368.90	10		328	
FE	II	2367.586	2366.864	5	165.	488	H	FE	I	2369.653	2368.929	10		896	M
V	II	2367.608	2366.883	20	43.	478		NI	II	2369.659	2368.935	2		835	
MN	II	2367.63	2366.91	30		328		KR	II	2369.696	2368.973	90		509	
SI	II	2367.695	2366.972	5		678		CR	III	2369.823	2369.100	120	54.	893	
CU	II	2367.703	2366.980	1	18.01	612		AR	II	2369.911	2369.187	20		506	
NE	III	2367.74	2367.02	140		1031	M	NI	II	2369.942	2369.218	50	36.	835	
NE	III	2367.74	2367.02	250		1024	M	FE	II	2369.955	2369.232	5	182.	488	H
AL	I	2367.776	2367.053	100	4.	198		TI	I	2370.01	2369.29	20	13.	488	
ZN	III	2367.914	2367.192	3		162		AL	I	2370.028	2369.304	160	11.	198	
CO	II	2367.915	2367.192	15		825		FE	II	2370.061	2369.347	80		645	
AR	II	2367.971	2367.248	10		506		FE	II	2370.179	2369.455	80		896	
F	III	2367.977	2367.254	30		537		FE	I	2370.1795	2369.4558	80	11.	896	
CR	I	2368.01	2367.29	3		341		NI	II	2370.236	2369.512	2		835	
NA	III	2368.018	2367.296	270		516		AS	I	2370.39	2369.67	80	17.	480	
NI	II	2368.108	2367.385	100	11.	835	H	CO	I	2370.398	2369.674	15	60.	603	
FE	I	2368.117	2367.394	0		378		FE	I	2370.4510	2369.7272	60		896	M
N	III	2368.15	2367.43	40		246		KR	II	2370.463	2369.740	40		509	
CO	II	2368.18	2367.45	10		825		MN	II	2370.49	2369.77	8		328	
K	VI	2368.2	2367.5			726	F	FE	I	2370.501	2369.777	20		896	M
N	III	2368.25	2367.53	25	28.0	521		NI	II	2370.547	2369.863	15		835	
ZN	III	2368.254	2367.531	1		162		CU	II	2370.6137	2369.8899	150	51.	612	
AL	I	2368.334	2367.611	100	11.	198		FE	I	2370.639	2369.915	10		896	M
NI	II	2368.391	2367.668	2		835		AR	II	2370.640	2369.916	20		506	
MN	I	2368.575	2367.851	1		148		CO	I	2370.649	2369.924	9	62.	603	
CR	I	2368.58	2367.86	10	10.	341		FE	II	2370.6774	2369.9536	80	379.	896	
CU	III	2368.638	2367.915	1		724		V	I	2370.72	2370.00	1		1000	
AL	I	2368.835	2368.112	100	11.	198		MN	II	2370.81	2370.09	12		328	
CU	III	2368.898	2368.174	340	20.	724		AL	I	2370.949	2370.225	130	11.	198	
AL	IV	2368.995	2368.272	40		898		V	V	2370.984	2370.261	30		929	
MN	II	2369.12	2368.40	0		328		CO	II	2371.02	2370.30	1		825	
SC	IV	2369.138	2368.415	20		720		CL	III	2371.09	2370.37	600	24.	43	
CR	III	2369.163	2368.440	10		893		CR	I	2371.09	2370.37	35	39.	341	
CR	I	2369.18	2368.46	3		341		CR	III	2371.112	2370.389	90		893	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	II	2371.2232	2370.4993	25	35.	896	H	NE	IV	2372.88	2372.16	500		1024	
CO	I	2371.239	2370.514	10	8.	603		V	II	2372.893	2372.168	15		478	
N	III	2371.25	2370.53	10	28.0	521		O	III	2372.925	2372.201	25		1032	
AR	II	2371.355	2370.631	5		506		TI	I	2372.95	2372.23	10	12.	488	
CR	I	2371.38	2370.66	3		341		CU	I	2373.00	2372.28	1		672	
MN	II	2371.43	2370.70	20		328		NI	II	2373.086	2372.361	15		835	
AL	I	2371.450	2370.726	60	11.	198		CO	II	2373.12	2372.39	5		825	
CO	II	2371.450	2370.726	25		825		V	I	2373.16	2372.43	1		1000	
CU	II	2371.4710	2370.7470	25	76.	612		CR	III	2373.200	2372.476	90		893	
NI	II	2371.489	2370.765	50		835		CO	II	2373.23	2372.51	2		825	
AS	I	2371.49	2370.77	100	17.	460		ZN	III	2373.234	2372.510	5		162	
FE	I	2371.498	2370.774	12		896	M	N	III	2373.24	2372.52	4	28.0	521	
ZN	III	2371.55J	2370.806	3		162		V	II	2373.309	2372.584	20		478	
FE	I	2371.634	2370.909	4		896	M	FE	II	2373.357	2372.633	10	333.	896	H
SI	IV	2371.709	2370.985	90	31.	767		CR	II	2373.36	2372.63	2	127.	340	
AL	IV	2371.751	2371.027	50		888		CL	III	2373.4	2372.7	0		43	
V	III	2371.76	2371.04	1000	10.	791		FE	II	2373.501	2372.777	1	148.	488	
NI	II	2371.762	2371.038	40		835		O	III	2373.546	2372.822	10		1032	
SE	III	2371.78	2371.06	150		587		CO	I	2373.557	2372.832	15	9.	603	
CR	I	2371.91	2371.18	2	70.	341		CR	I	2373.61	2372.88	20	39.	341	
CR	II	2371.95	2371.23	4		340		CO	II	2373.810	2373.085	5		825	
GA	I	2372.01	2371.29	40	5.	488		KR	II	2373.821	2373.097	10		509	
ZN	III	2372.126	2371.402	15		162		AL	I	2373.847	2373.122	100	4.	198	
FE	I	2372.1547	2371.4305	110	11.	896		NE	IV	2373.93	2373.21	800		1024	
CO	I	2372.183	2371.458	15	133.	603		AL	I	2374.075	2373.351	7	4.	198	
CO	II	2372.325	2371.601	7		825		MN	II	2374.082	2373.357	140	38.	328	
AR	II	2372.386	2371.662	10		506		CO	I	2374.096	2373.370	20		603	
AR	II	2372.4633	2371.7390	40		867		V	V	2374.183	2373.459	10		929	
MN	II	2372.481	2371.758	10		328		MN	II	2374.21	2373.49	15		328	
GE	II	2372.517	2371.793	10		676		CO	I	2374.29	2373.56	0		603	
ZN	III	2372.549	2371.825	0		162		AL	I	2374.296	2373.571	100	11.	198	
CO	I	2372.570	2371.845	6	12.	603		FE	I	2374.3492	2373.6245	170	11.	896	
CO	II	2372.570	2371.846	15		825		ZN	III	2374.351	2373.627	0		162	
TI	I	2372.67	2371.95	20	12.	488		MN	III	2374.36	2373.64	2		301	
AS	II	2372.718	2371.994	10		425		KR	II	2374.419	2373.695	120		509	
GE	II	2372.767	2372.043	1		676		CR	I	2374.42	2373.69	50	39.	341	
BR	II	2372.78	2372.05	0		606		CR	II	2374.43	2373.70	2		340	
AL	I	2372.794	2372.070	160	3.	198		FE	II	2374.4598	2373.7351	125	2.	896	H
AL	I	2372.795	2372.070	160	11.	198		AR	II	2374.462	2373.737	5		506	
MN	I	2372.842	2372.116	10	2.	148		CO	II	2374.47	2373.75	2		825	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2374.531	2373.806	8		896	M	NI	II	2376.626	2375.901	3		835	
MN	I	2374.570	2373.845	10	14.	301		MN	III	2376.7	2375.9			909	F
CO	I	2374.587	2373.862	9	13.	603		CR	I	2376.71	2375.98	7	70.	341	
FE	I	2374.629	2373.904	60	115.	188		NI	II	2376.735	2376.010	75		835	
V	I	2374.75	2374.02	50		325		NI	I	2376.741	2376.016	35	30.	488	
FE	I	2374.810	2374.085	6		896	M	CU	II	2377.0288	2376.3036	50	176.	612	
AS	II	2374.869	2374.144	3		425		V	II	2377.06	2376.33	1		478	
CR	III	2374.901	2374.176	40		893		MN	III	2377.1	2376.4			909	F
FE	I	2374.972	2374.247	8		896	M	CR	II	2377.13	2376.40	5	147.	340	
SI	II	2374.980	2374.255	5	18.01	678		AR	II	2377.155	2376.430	10		506	
MN	III	2375.037	2374.312	20	15.	301		FE	II	2377.1550	2376.4297	110	379.	896	
V	II	2375.04	2374.31	2		478		FE	III	2377.451	2376.725	60	115.	188	
FE	II	2375.114	2374.389	10		896		MN	II	2377.453	2376.730	20		328	
CO	II	2375.181	2374.456	6		825		FE	I	2377.697	2376.971	0		378	
CO	I	2375.182	2374.456	4		603		CO	I	2377.701	2376.975	6		603	
AL	I	2375.221	2374.496	25	11.	198		V	I	2377.809	2377.083	3	89.	1000	
FE	I	2375.2430	2374.5182	110	11.	896		CR	III	2377.882	2377.159	60		893	
CR	II	2375.30	2374.57	1		340		MN	I	2377.909	2377.183	30	2.	148	
NI	II	2375.307	2374.582	20		835		CO	I	2377.941	2377.215	12	63.	603	
TI	I	2375.31	2374.59	30	13.	488		CR	II	2378.05	2377.32	2		340	
V	II	2375.375	2374.649	6		478		AR	II	2378.058	2377.332	10		506	
ZN	III	2375.420	2374.695	8		162		BR	II	2378.065	2377.341	0		606	
NI	II	2375.527	2374.802	5		835		MN	II	2378.07	2377.34	8		328	
NE	II	2375.541	2374.816	40		563		NI	II	2378.075	2377.350	5	28.	835	
ZN	III	2375.660	2374.935	0		162		ZN	III	2378.137	2377.414	6		162	
TI	III	2375.711	2374.986	520	10.	227		MN	III	2378.2	2377.5			909	F
FE	I	2375.720	2374.995	20		896	M	GA	II	2378.25	2377.53	30		652	
CR	I	2375.79	2375.06	5	39.	341		V	III	2378.32	2377.62	10		325	
C	II	2375.81	2375.08	40	26.	287		ZN	III	2378.492	2377.769	3		162	
GE	II	2375.861	2375.136	2		676		CU	III	2378.514	2377.788	5		724	
CO	II	2375.909	2375.184	40	8.	825		CU	II	2378.5181	2377.7925	3		612	
FE	II	2375.9185	2375.1935	60	36.	896	H	MN	III	2378.6	2377.9			909	F
CR	I	2376.14	2375.41	40		341		FE	I	2378.617	2377.891	6	107.	896	
NI	II	2376.143	2375.418	320	21.	835		CR	I	2378.67	2377.94	10		341	
NE	II	2376.214	2375.489	40		563		FE	I	2378.718	2377.991	2	107.	605	
KR	II	2376.254	2375.529	250		509		CR	I	2378.81	2378.07	20	70.	341	
F	II	2376.40	2375.68	10		538		FE	II	2378.851	2378.125	20		896	
FE	I	2376.403	2375.678	0		378		TI	I	2378.87	2378.15	30	12.	488	
CR	II	2376.42	2375.69	4	146.	340		SC	IV	2378.924	2378.200	1		720	
FE	II	2376.440	2375.714	0		645		V	I	2378.989	2378.262	4		1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2379.01	2378.28	3	45.	340		CR	I	2380.58	2379.85	10	39.	341	
V	IV	2379.015	2378.290	1		829		AR	II	2380.5882	2379.8621	30		867	
CR	III	2379.030	2378.306	90		893		CR	III	2380.639	2379.915	120		893	
CU	II	2379.1310	2378.4053	2		612		CR	I	2380.68	2379.95	10	10.	341	
FE	II	2379.250	2378.526	20	270.	488		ZN	III	2380.843	2380.119	5		162	
FE	II	2379.250	2378.526	20	377.	488		V	I	2380.905	2380.178	5	28.	1000	
MN	II	2379.276	2378.610	8		328		MN	III	2380.905	2380.179	20		301	
NI	II	2379.306	2378.580	10		835		FE	II	2380.931	2380.205	40		896	
FE	I	2379.330	2378.604	1		378		V	I	2380.993	2380.266	8	28.	1000	
CO	II	2379.349	2378.623	40	7.	825	H	MN	II	2381.001	2380.275	10		328	
CR	II	2379.41	2378.68	5	45.	340		NI	II	2381.079	2380.353	10		835	
FE	II	2379.415	2378.691	1	388.	488		NE	II	2381.093	2380.367	10		563	
FE	II	2379.546	2378.820	10		896	M	CL	II	2381.161	2380.435	1		613	
CU	II	2379.5705	2378.8447	40		612		CR	I	2381.19	2380.46	7	10.	341	
AS	II	2379.574	2378.849	3		425		CO	I	2381.210	2380.483	20	6.	603	
MN	II	2379.58	2378.86	10		328		ZN	III	2381.217	2380.493	5		162	
O	III	2379.590	2378.867	40		1032		CO	II	2381.22	2380.50	M		825	
CR	II	2379.63	2378.90	3	45.	340		CO	I	2381.423	2380.696	4	10.	603	
CO	I	2379.632	2378.905	5	125.	603		F	III	2381.441	2380.715	4		537	
FE	II	2379.727	2379.003	20	182.	488		NI	II	2381.449	2380.723	5		835	
MN	II	2379.73	2379.01	5		328		B	V	2381.46	2380.73			309	
MN	II	2379.82	2379.10	0		328		FE	II	2381.4877	2380.7615	110	3.	896	H
GE	I	2379.8702	2379.1443	120	9.	7		TI	I	2381.52	2380.80	40	13.	489	
V	II	2379.876	2379.149	100	43.	478		NI	I	2381.536	2380.812	10	13.	488	
FE	II	2379.879	2379.155	20	211.	488		CU	III	2381.581	2380.855	3		724	
CO	I	2379.887	2379.160	4	12.	603		FE	I	2381.601	2380.875	15		896	M
CR	I	2379.90	2379.17	1		341		V	II	2381.637	2380.910	120	25.	478	
F	III	2379.992	2379.266	12		537		CO	II	2381.71	2380.98	15		825	
FE	II	2379.999	2379.273	80	36.	896	H	MN	II	2381.745	2381.019	10		328	
CO	I	2380.084	2379.357	4		603		CR	III	2381.794	2381.070	250		893	
CU	I	2380.09	2379.36	2		672		NI	II	2381.825	2381.098	1		835	
MN	II	2380.13	2379.40	0		328		ZN	III	2381.837	2381.113	3		162	
CU	II	2380.1312	2379.4053	8		612		AR	II	2381.864	2381.138	30		506	
FE	II	2380.133	2379.407	20		896		AS	I	2381.91	2381.18	150	5.	480	
AR	II	2380.155	2379.429	10		506		NI	II	2381.936	2381.210	30		835	
CL	III	2380.19	2379.47	500	17.	38		CO	I	2381.98	2381.26	4		603	
CR	I	2380.29	2379.56	8	38.	341		ZN	III	2382.027	2381.303	4		162	
NI	II	2380.300	2379.574	100		835		CR	I	2382.09	2381.36	7	70.	341	
CU	III	2380.317	2379.591	5		724		CO	II	2382.18	2381.46	M		825	
NI	I	2380.444	2379.720	5	55.	488		AR	II	2382.183	2381.456	10		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	2382.21	2381.48	50	34.	340		LI	II	2383.926	2383.199	I		307	
MN	II	2382.23	2381.51	1		328		FE	II	2383.9720	2383.2452	60	36.	896	H
NI	II	2382.242	2381.516	10		835		NI	III	2383.99	2383.26	2		661	
LI	II	2382.264	2381.538	I		307		ZN	III	2384.00	2383.27	2		162	
V	IV	2382.439	2381.712	10		829		CR	I	2384.031	2383.303	40	39.	341	
CO	II	2382.479	2381.753	50		825		AL	IV	2384.080	2383.355	5		888	
ZN	III	2382.508	2381.783	0		162		V	II	2384.160	2383.432	6		478	
MN	II	2382.53	2381.80	2		328		CO	II	2384.182	2383.455	50	7.	825	
FE	I	2382.5611	2381.8346	125	11.	896		AR	II	2384.213	2383.486	60		506	
NI	II	2382.619	2381.892	8		835		NI	II	2384.267	2383.540	5		835	
MN	II	2382.638	2381.911	1		328		O	III	2384.638	2383.913	90		1032	
GE	II	2382.645	2381.918	3		676		MN	II	2384.648	2383.921	30		328	
CR	II	2382.70	2381.97	2	44.	340		ZN	II	2384.648	2383.923	30.		154	
F	III	2382.715	2381.989	80		537		AR	II	2384.6645	2383.9375	20		867	
NI	II	2382.720	2381.993	8		835		V	II	2384.723	2383.995	80	25.	478	
V	II	2382.759	2382.032	60		478		MN	I	2384.777	2384.049	40	2.	148	
CU	III	2382.759	2382.033	10		724		AS	II	2384.782	2384.054	30		425	
FE	II	2382.7620	2382.0355	320	2.	896	H	CO	II	2384.82	2384.10	2		825	
ZN	III	2382.783	2382.058	1		162		MN	II	2384.858	2384.131	0		328	
MN	II	2382.84	2382.11	2		328		NE	IV	2384.93	2384.20	100		1024	
MN	I	2382.902	2382.175	2		148		V	I	2385.014	2384.286	20	28.	1000	
CR	II	2382.93	2382.20	5	44.	340		MN	II	2385.06	2384.33	10		328	
ZN	III	2382.973	2382.248	0		162		CR	I	2385.11	2384.38	1		341	
O	III	2382.992	2382.267	120		1032		NI	I	2385.115	2384.390	30	10.	483	
CO	II	2383.055	2382.328	40		825		FE	II	2385.1154	2384.3883	50	36.	896	H
FE	II	2383.081	2382.356	40	35.	488	H	FE	I	2385.1496	2384.4225	100		896	M
CR	I	2383.09	2382.36	7	39.	341		TI	I	2385.25	2384.52	40	12.	488	
NI	II	2383.166	2382.439	40		835		FE	I	2385.275	2384.548	20		896	M
V	III	2383.18	2382.46	750	10.	791		O	IV	2385.34	2384.61	120		86	
AR	II	2383.292	2382.565	10		506		TI	V	2385.361	2384.636	10		727	
CR	I	2383.40	2382.67	1		341		V	I	2385.37	2384.64	5	28.	1000	
NI	II	2383.402	2382.675	8		835		V	IV	2385.456	2384.729	10		829	
MN	II	2383.61	2382.88	12		328		NI	II	2385.472	2384.745	100		835	
FE	II	2383.624	2382.897	20	117.	896		NI	V	2385.5	2384.8			922	F P
CU	III	2383.679	2382.952	5		724		MN	III	2385.552	2384.825	20		301	
AR	II	2383.682	2382.955	10		506		CU	II	2385.58	2384.80	5		670	
MN	II	2383.719	2382.991	20		328		CO	I	2385.586	2384.858	10	5.	603	
V	I	2383.766	2383.038	3	29.	1000		MN	II	2385.640	2384.912	12		328	
FE	II	2383.787	2383.060	20	2.	896	H	CU	II	2385.6716	2384.9444	8	76.	612	
CU	III	2383.797	2383.070	2		724		CO	II	2385.68	2384.95	M		825	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NE	IV	2385.68	2384.95	500	1024		CO	II	2387.458	2386.730	30		825
AR	II	2385.696	2384.965	40	506		CR	I	2387.50	2386.77	7	36.	341
V	II	2385.724	2384.996	6	478		N	II	2387.51	2386.78	5	18.0	200
FE	II	2385.732	2385.005	10	896	H	MN	II	2387.535	2386.807	12		328
NI	I	2385.737	2385.011	15	488	N	MN	II	2387.668	2386.940	20		328
CU	II	2385.823	2385.096	1	612		V	I	2387.685	2386.956	40	89.	1000
MN	II	2385.823	2385.096	10	328		NA	III	2387.720	2386.994	540		516
V	I	2385.87	2385.14	2	1000		MN	II	2387.732	2387.004	40	48.	328
HE	II	2386.131	2385.404		309		CR	II	2387.76	2387.03	4	127.	340
CU	III	2386.135	2385.408	0	724		NE	II	2387.767	2387.039	5		563
CU	III	2386.249	2385.522	1	724		NE	II	2387.832	2387.104	5		563
MN	II	2386.259	2385.532	10	328		NI	III	2387.92	2387.28	10	26.	601
FE	I	2386.307	2385.580	1	378		FE	I	2387.944	2387.216	5		896
MN	II	2386.344	2385.618	10	328		ZN	III	2387.95	2387.22	10		162
V	III	2386.35	2385.62	50	791	15.	MN	II	2387.996	2387.268	8		328
CR	I	2386.45	2385.72	7	341	39.	CL	III	2388.0	2387.3	300		43
CO	I	2386.541	2385.813	9	603		MN	II	2388.062	2387.335	12		328
KR	II	2386.572	2385.846	10	509		FE	II	2388.106	2387.380	20		1026
FE	I	2386.6	2385.9	1	605	69.	FE	II	2388.150	2387.424	20	286.	488
AR	II	2386.663	2385.936	10	506		CO	II	2388.187	2387.464	M		825
ZN	III	2386.8	2386.1	2	162		CO	I	2388.189	2387.460	10		603
CR	II	2386.81	2386.08	3	340		CR	I	2388.19	2387.46	2		341
NI	II	2386.843	2386.115	15	835		V	I	2388.203	2387.475	5	27.	1000
CR	I	2386.91	2386.18	10	341	38.	FE	I	2388.236	2387.508	8		896
MN	II	2386.934	2386.206	15	328		NI	I	2388.275	2387.549	20	54.	488
S	IV	2387.	2386.		107		V	IV	2388.391	2387.663	3		829
BR	II	2387.032	2386.306	150	606		CU	III	2388.421	2387.693	5		724
CO	II	2387.091	2386.363	20	825	7.	NI	II	2388.492	2387.764	100	19.	935
FE	II	2387.113	2386.387	20	488	396.	MN	II	2388.507	2387.779	8		328
V	I	2387.137	2386.409	20	1000	60.	V	I	2388.509	2387.780	8		1000
NI	II	2387.165	2386.438	5	835		FE	I	2388.558	2387.830	1	67.	378
V	II	2387.18	2386.45	2	478		AR	II	2388.6598	2387.9319	30		867
BR	II	2387.202	2386.476	500	606		V	II	2388.66	2387.93	3		478
CO	I	2387.238	2386.509	3	603		CA	III	2388.678	2387.950	200		85
MN	II	2387.243	2386.515	0	328		V	I	2388.813	2388.084	35	26.	1000
NI	I	2387.311	2386.585	50	488	32.	CO	I	2388.903	2388.175	5	59.	603
MN	II	2387.333	2386.605	10	328		O	III	2388.93	2388.20	4		168
KR	II	2387.393	2386.667	1	509		N	II	2388.958	2388.230	40	18.0	200
BR	II	2387.432	2386.706	1000	606		FE	II	2388.963	2388.235	12	148.	896
MN	II	2387.443	2386.715	8	328		V	II	2388.988	2388.260	5	73.	478

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AR	II	2388.996	2388.268	10		506		FE	II	2391.038	2390.311	1	304.	488	
FE	II	2389.1004	2388.3725	40	117.	896		CO	I	2391.155	2390.426	4		603	
CC	I	2389.103	2388.374	3	10.	603		O	III	2391.17	2390.44	150		163	
BR	II	2389.254	2388.527	150		606		V	II	2391.199	2390.470	15		478	
FE	II	2389.3563	2388.6283	170	2.	896	H	KR	II	2391.255	2390.528	90		509	
MN	III	2389.41	2388.69	15		301		FE	II	2391.273	2390.546	1	304.	488	
BR	II	2389.428	2388.701	350		606		CU	III	2391.438	2390.709	10		724	
MN	II	2389.43	2388.70	20		328		FE	II	2391.494	2390.766	20	402.	896	
MN	II	2389.45	2388.72	5		328		V	I	2391.503	2390.774	30	28.	1000	
V	I	2389.639	2388.910	40	89.	1000		N	II	2391.594	2390.866	70	18.0	200	
CO	II	2389.654	2388.926	40	7.	825		V	I	2391.597	2390.868	4	29.	1000	
MN	II	2389.702	2388.973	20		328		ZN	III	2391.60	2390.87	30		162	
BR	II	2389.712	2388.985	800.		606		AR	II	2391.606	2390.878	20		506	
AR	II	2389.728	2389.000	10		506		V	III	2391.68	2390.95	30		325	
MN	III	2389.763	2389.035	5	14.	301		NI	III	2391.84	2391.11	15	23.	661	
MN	II	2389.803	2389.075	5		328		V	III	2391.91	2391.18	10		325	
MN	III	2389.87	2389.15	5		301		V	II	2391.955	2391.226	10	73.	478	
V	II	2389.873	2389.144	2	43.	478		V	I	2391.997	2391.268	30	60.	1000	
CR	I	2389.94	2389.21	3	37.	341		MN	II	2392.011	2391.281	20		328	
KR	II	2390.153	2389.426	25		509		CO	I	2392.098	2391.369	9		603	
CR	I	2390.16	2389.43.	10	36.	341		FE	II	2392.207	2391.478	15	35.	896	H
GE	I	2390.2007	2389.4725	50	9.	7		CU	III	2392.468	2391.739	290	20.	724	
MN	II	2390.218	2389.490	30		328		NI	II	2392.534	2391.805	20		835	
FE	III	2390.262	2389.533	150	131.	188		FE	I	2392.555	2391.826	1		378	
CO	I	2390.269	2389.540	12	10.	603	H	SE	III	2392.66	2391.93	1		587	
CO	II	2390.269	2389.541	40	7.	825	H	CR	I	2392.68	2391.95	3	39.	341	
AS	II	2390.4030	2389.6747	25		425		V	I	2392.73	2392.00	1		1000	
V	II	2390.425	2389.696	100	25.	478		CO	I	2392.759	2392.029	1	6.	603	
BR	II	2390.453	2389.726	1000		608		CO	II	2392.76	2392.03	4		825	
CR	II	2390.48	2389.75	40	146.	340		CR	III	2392.795	2392.067	300		893	
MN	II	2390.520	2389.792	2		328		FE	II	2392.818	2392.089	10		896	
FE	II	2390.597	2389.870	5	244.	488		NI	II	2392.835	2392.106	30	36.	835	
FE	I	2390.7012	2389.9728	140	11.	896		FE	I	2392.8787	2392.1499	25		896	M
CO	I	2390.713	2389.984	8	60.	603		V	II	2392.90	2392.17	2		478	
F	III	2390.776	2390.048	50		537		BR	II	2392.971	2392.243	500		603	
P	II	2390.78	2390.05	1		496		NI	II	2393.018	2392.289	5		835	
SE	III	2390.79	2390.06	85		587		CU	III	2393.053	2392.324	2		724	
ZN	II	2390.805	2390.078	20		154		CR	I	2393.07	2392.34	10	36.	341	
CR	I	2390.82	2390.09	4		341		BR	II	2393.198	2392.470	600		606	
FE	II	2390.8259	2390.0975	30		896		MN	II	2393.25	2392.52	10		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	2393.28	2392.55	5		340		LI	I	2395.114	2394.386	3	5.	488	
FE	II	2393.308	2392.578	20		896		MN	II	2395.124	2394.395	10		328	
NI	II	2393.317	2392.588	100	36.	835		CU	III	2395.192	2394.463	1		724	
CO	II	2393.32	2392.59	40		825		NI	II	2395.249	2394.519	320	20.	835	H
CU	I	2393.357	2392.627	500	19.	672		AL	IV	2395.252	2394.524	50		888	
CU	II	2393.415	2392.686	1		612		MN	II	2395.27	2394.54	25		328	
V	II	2393.428	2392.698	8		478		CL	III	2395.46	2394.73	500	14.	43	
KR	II	2393.518	2392.790	200		509		FE	I	2395.562	2394.832	8		896	M
CR	II	2393.53	2392.80	4	299.	340		NI	II	2395.572	2394.843	100	36.	835	H
AR	II	2393.537	2392.808	10		506		FE	II	2395.621	2394.892	40	116.	488	H
CR	I	2393.59	2392.86	25	36.	341		V	II	2395.65	2394.92	2		478	
V	I	2393.628	2392.898	40	60.	1000		B	II	2395.777	2395.048	500	4.	532	
NI	II	2393.663	2392.961	75	31.	468		V	I	2395.835	2395.104	30	60.	1000	
ZN	III	2393.76	2393.03	80		162		MG	III	2395.88	2395.15	640	5.	2	
FE	I	2393.823	2393.094	1	66.	378		MN	II	2396.114	2395.383	40	48.	328	
NI	I	2393.837	2393.109	5	31.	488		CO	I	2396.120	2395.390	6		603	
CA	III	2393.893	2393.164	300		85		BR	II	2396.124	2395.395	250		606	
B	II	2393.933	2393.204	100		532		FE	II	2396.1492	2395.4196	40	2.	896	H
ZN	III	2393.97	2393.24	3		162		V	I	2396.159	2395.429	10	60.	1000	
CU	II	2393.9895	2393.2604	4		612		MN	II	2396.16	2395.43	30	48.	328	
BR	II	2394.05	2393.32	50		606		V	IV	2396.180	2395.450	10		829	
CR	II	2394.08	2393.35	4		340		NI	II	2396.236	2395.507	1		835	
V	III	2394.27	2393.54	625	10.	791		CO	II	2396.246	2395.516	20		825	
NA	III	2394.318	2393.590	270		516		FE	II	2396.354	2395.624	320		896	H
P	II	2394.32	2393.59	0		495		CR	I	2396.50	2395.77	8	38.	341	
CO	I	2394.365	2393.635	1		603		MN	II	2396.53	2395.80	1		328	
AS	II	2394.416	2393.687	1		425		CR	I	2396.57	2395.84	2	35.	341	
MN	II	2394.43	2393.70	3		328		CR	I	2396.60	2395.89	2	37.	341	
V	II	2394.544	2393.814	8	73.	478		AR	II	2396.73	2396.00	5		506	
CO	II	2394.634	2393.905	40	8.	825		CR	I	2396.77	2396.04	7	37.	341	
CR	II	2394.72	2393.99	50	146.	340		V	I	2396.819	2396.089	1		1000	
CU	II	2394.7594	2394.0301	3		612		FE	I	2396.8311	2396.1014	20		896	M
NA	III	2394.761	2394.033	510		516		CO	I	2396.962	2396.232	10	132.	603	
FE	I	2394.787	2394.058	0		378		CR	I	2397.09	2396.36	30	36.	341	
GE	I	2394.8097	2394.0804	40	9.	7		NI	I	2397.107	2396.378	15	12.	488	
V	I	2394.882	2394.152	2		1000		CU	III	2397.135	2396.405	10		724	
FE	II	2394.900	2394.172	1	303.	488		CR	III	2397.142	2396.413	200		893	
CO	I	2394.957	2394.227	4		603		MN	II	2397.197	2396.467	8		328	
V	I	2395.000	2394.270	10	62.	1000		CR	II	2397.21	2396.48	10	147.	340	
O	III	2395.06	2394.33	60		168		V	I	2397.223	2396.492	15	60.	1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	III	2397.25	2396.52	30		325		AR	II	2399.102	2398.372	50		506	
ZN	III	2397.28	2396.55	25		162		MN	II	2399.160	2398.429	0		328	
CU	III	2397.305	2396.575	0		724		CR	II	2399.24	2398.51	15	43.	340	
CO	I	2397.319	2396.588	5	124.	603		CO	I	2399.285	2398.554	4		603	
NI	I	2397.359	2396.630	15	53.	488		CA	I	2399.289	2398.559	25	5.	1018	A
CU	III	2397.428	2396.698	10		724		MN	III	2399.30	2398.57	3		301	
V	I	2397.436	2396.706	8	27.	1000		NI	II	2399.355	2398.625	2		835	
FE	II	2397.449	2396.719	15	211.	896	H	FE	II	2399.394	2398.664	20	49.	488	
CO	I	2397.509	2396.779	90		603		V	I	2399.428	2398.697	10	61.	1000	
V	II	2397.658	2396.927	4		478		MN	II	2399.522	2398.792	30		328	
ZN	III	2397.68	2396.95	1		162		ZN	III	2399.55	2398.82	50		162	
CO	I	2397.76	2397.03	6		603		V	I	2399.608	2398.877	4	89.	1000	
V	III	2397.86	2397.13	20		325		O	II	2399.61	2398.88	1		168	
CR	I	2397.92	2397.19	1		341		CL	II	2399.643	2398.913	1		613	
CO	I	2397.98	2397.25	4		603		O	III	2399.746	2399.016	0		1032	
MN	II	2398.016	2397.286	25		328		CR	I	2399.75	2399.02	20	36.	341	
CO	II	2398.12	2397.39	30	16.	825	H	AL	III	2399.750	2398.995	110		826	
P	II	2398.17	2397.44	1		496		MN	II	2399.791	2399.061	12		328	
V	I	2398.226	2397.496	4	29.	1000		CR	II	2399.94	2399.21	3	170.	340	
NI	II	2398.239	2397.509	1		835		O	II	2399.94	2399.21	1		168	
AR	II	2398.278	2397.548	20		506		FE	II	2399.9717	2399.2413	170	2.	896	H
V	II	2398.353	2397.622	6	73.	478		FE	II	2399.9717	2399.2413	170	36.	896	H
F	III	2398.390	2397.650	80		537		CR	I	2400.02	2399.29	3	35.	341	
MN	I	2398.463	2397.732	2		148		AR	II	2400.102	2399.372	20		506	
CR	II	2398.48	2397.75	40	43.	340		MN	II	2400.131	2399.400	25		328	
V	I	2398.506	2397.775	40	28.	1000		CO	II	2400.21	2399.48	3		825	
MN	II	2398.599	2397.868	25		328		FE	II	2400.229	2399.499	5	396.	488	
GE	I	2398.6149	2397.8848	60		7		CR	III	2400.253	2399.523	60		893	
V	III	2398.73	2398.00	20		325		CR	I	2400.29	2399.56	20	36.	341	
AS	IV	2398.77	2398.04	50		584		MN	II	2400.32	2399.59	3		328	
MN	II	2398.813	2398.082	5		328		FE	II	2400.366	2399.636	1	303.	488	
V	I	2398.865	2398.134	20	27.	1000		CR	II	2400.40	2399.67	30	235.	340	
FE	I	2398.946	2398.215	1	106.	605		V	III	2400.40	2399.67	375	10.	791	
MN	II	2398.97	2398.24	10		328		MN	II	2400.416	2399.685	3		328	
S	IV	2399.	2398.			107		CL	II	2400.561	2399.830	3		613	
V	I	2399.008	2398.277	20	30.	1000		AR	II	2400.581	2399.851	30		506	
CR	II	2399.01	2398.28	1	43.	340		V	I	2400.685	2399.954	50	26.	1000	
NI	II	2399.018	2398.288	75		835		FE	II	2400.780	2400.049	20		896	
MN	III	2399.05	2398.32	5	14.	301		CU	II	2400.8451	2400.1147	60	50.	612	
CO	II	2399.100	2398.370	30		825		SE	III	2400.86	2400.13	50		587	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	III	2400.866	2400.136	120		893		ZN	III	2402.60	2401.87	2		162	
MN	II	2400.881	2400.150	25		328		V	I	2402.633	2401.901	60	26.	1000	
V	II	2400.898	2400.166	4	72.	478		NI	II	2402.660	2401.929	100		835	
MN	II	2400.952	2400.221	10		328		MN	II	2402.688	2401.957	15		328	
CR	II	2400.97	2400.24	15	170.	340		N	IV	2402.78	2402.05	110	18.89	824	
FE	II	2400.977	2400.247	20	181.	488	H	CO	I	2402.790	2402.058	10	5.	603	
FE	II	2401.068	2400.338	70	244.	488	H	CR	II	2402.80	2402.07	5	299.	340	
NI	II	2401.105	2400.374	1		835		MN	II	2402.812	2402.080	25		328	
MN	II	2401.16	2400.43	15		328		CO	I	2402.895	2402.164	30	12.	603	
AS	II	2401.162	2400.431	0		425		FE	II	2402.986	2402.255	20	181.	488	H
CO	I	2401.290	2400.558	30	115.	603		HE	I	2403.	2402.	2		126	
CL	II	2401.35	2400.62	2		341		CR	II	2403.04	2402.31	2	44.	340	
CU	III	2401.534	2400.803	15		724		LI	II	2403.062	2402.331	1		307	
KR	II	2401.553	2400.823	25		509		CL	II	2403.081	2402.350	1		613	
CO	I	2401.565	2400.833	30	60.	603		CU	III	2403.132	2402.401	10		724	
AR	II	2401.58	2400.85	5		506		C	II	2403.133	2402.402	120	16.	287	
V	II	2401.623	2400.892	40		478		ZN	III	2403.18	2402.45	20		162	
NI	II	2401.656	2400.925	3		835		FE	II	2403.181	2402.450	80	377.	488	
MN	II	2401.68	2400.94	0		328		GE	II	2403.235	2402.504	5		676	
AR	II	2401.75	2401.02	5		506		MN	II	2403.262	2402.530	12		328	
MN	II	2401.82	2401.09	15	48.	328		CO	I	2403.291	2402.559	15	61.	603	
CO	I	2401.833	2401.102	30		603		CO	II	2403.324	2402.593	15		825	
MN	II	2401.85	2401.12	0	48.	328		FE	II	2403.328	2402.597	40	36.	488	H
FE	I	2401.867	2401.136	1		378		CR	II	2403.46	2402.73	3	44.	340	
FE	II	2402.0226	2401.2917	15	402.	896		CO	II	2403.52	2402.79	6		825	
MN	II	2402.030	2401.298	3		328		V	IV	2403.586	2402.855	5		829	
CR	II	2402.06	2401.41	2		340		NI	III	2403.61	2402.88	20	26.	661	
CO	II	2402.17	2401.44	3		825		AR	II	2403.631	2402.900	10		506	
V	I	2402.181	2401.450	3		1000		CR	II	2403.71	2402.98	4	71.	340	
ZN	III	2402.22	2401.49	50		162		V	I	2403.761	2403.029	10	60.	1000	
G	III	2402.282	2401.552	1		1032		CU	III	2403.777	2403.046	10		724	
V	I	2402.287	2401.555	1		1000		AS	IV	2403.88	2403.15	100		584	
CO	I	2402.327	2401.595	30	10.	603		AR	II	2403.968	2403.237	50		506	
MN	II	2402.447	2401.715	30	48.	328		V	II	2403.972	2403.240	9	73.	478	
C	II	2402.492	2401.761	60	16.	287		CL	III	2404.05	2403.32	500	17.	38	
CR	I	2402.54	2401.81	1		341		CU	II	2404.0687	2403.373	120	76.	612	
MN	II	2402.56	2401.83	1		328		CO	I	2404.069	2403.337	15		603	
MN	I	2402.562	2401.830	2		148		V	I	2404.094	2403.362	5	60.	1000	
NI	I	2402.570	2401.839	100	6.	488		MN	II	2404.141	2403.409	15		328	
CL	II	2402.60	2401.87	4		345		MN	II	2404.209	2403.477	10		328	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	2404.27	2403.54	2		340		FE	II	2405.617	2404.885	280	2.	896	H
FE	III	2404.283	2403.551	90	114.	188		CR	II	2405.65	2404.92	8	170.	340	
CR	II	2404.35	2403.62	3	169.	340		F	III	2405.679	2404.947	150		537	
CO	II	2404.368	2403.637	15		825		C	IV	2405.84	2405.10	250	12.01	35	
CO	I	2404.369	2403.637	15		603		NI	II	2405.895	2405.163	100	49.	835	
MN	II	2404.37	2403.64	1		328		NE	IV	2405.92	2405.19	10		1024	
NI	II	2404.440	2403.708	1		835		AS	II	2405.938	2405.206	2		425	
MN	I	2404.480	2403.748	2		148		CL	II	2405.94	2405.21	2		345	
CO	II	2404.51	2403.78	20		825		ZN	III	2405.94	2405.21	15		162	
FE	II	2404.530	2403.799	1	378.	488		AR	II	2405.960	2405.228	50		506	
CL	II	2404.60	2403.87	6		345		V	I	2405.977	2405.245	10	61.	1000	
CR	II	2404.60	2403.87	10	170.	340		MN	I	2406.006	2405.274	3		148	
CO	II	2404.61	2403.88	M		825		CR	II	2406.01	2405.28	10	235.	340	
NI	II	2404.688	2403.956	30		835		V	I	2406.226	2405.494	8		1000	
FE	II	2404.698	2403.967	0	413.	488		CU	III	2406.237	2405.505	500	23.	724	
CR	III	2404.773	2404.042	650		893		S	III	2406.36	2405.63	3		598	
CL	II	2404.868	2404.136	1		613		MN	I	2406.361	2405.628	2		148	
V	III	2404.89	2404.16	500	10.	791		FE	II	2406.4145	2405.6826	10	402.	896	
CO	II	2404.897	2404.165	60	7.	825		CR	I	2406.43	2405.70	2	37.	341	
CR	II	2404.95	2404.22	3	169.	340		FE	XII	2406.44	2405.71	216		940	FH
NE	IV	2405.01	2404.28	1		1024		CR	II	2406.45	2405.72	1	282.	340	
AR	II	2405.084	2404.352	90		506		AS	IV	2406.46	2405.73	350		584	
TI	III	2405.11	2404.38	3		227		V	I	2406.465	2405.733	6	60.	1000	
NE	II	2405.123	2404.391	20		563		AR	II	2406.5124	2405.7805	30		867	
FE	II	2405.1623	2404.4307	50	2.	896	H	V	II	2406.549	2405.817	2		478	
C	IV	2405.17	2404.44	170	12.01	35		MN	II	2406.56	2405.83	1		328	
FE	I	2405.247	2404.515	15		896	M	CL	II	2406.59	2405.86	4		345	
CO	II	2405.25	2404.52	25		825		AS	II	2406.6021	2405.8702	150		425	
V	I	2405.277	2404.544	5		489		MN	II	2406.63	2405.90	10		328	
NI	II	2405.279	2404.548	1		835		NI	III	2406.67	2405.94	50	23.	661	
CL	II	2405.321	2404.590	8		613		MN	I	2406.749	2406.017	2		148	
CU	III	2405.338	2404.606	10		724		FE	II	2406.750	2406.018	0	378.	488	
CR	II	2405.45	2404.72	2	335.	340		CR	I	2406.76	2406.03	5	35.	341	
C	VI	2405.49	2404.76			309		AS	IV	2406.77	2406.04	50		584	
ZN	III	2405.56	2404.83	12		162		FE	II	2406.816	2406.086	5	131.	488	
CO	I	2405.58	2404.84	10	60.	603		MN	II	2406.833	2406.101	5		328	
LI	III	2405.597	2404.865			309		CO	I	2406.998	2406.266	25	58.	603	
CU	I	2405.598	2404.864	2	34.	672		NI	II	2407.121	2406.389	15	36.	835	
NI	II	2405.613	2404.881	10		835		FE	III	2407.142	2406.409	25		188	
MN	I	2405.615	2404.882	5		148		AR	II	2407.17	2406.44	5		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
AS	IV	2407.27	2406.54	50		584		CU	III	2409.114	2408.381	10		724	
NE	II	2407.310	2406.578	20		563		MN	II	2409.134	2408.401	15		328	
NA	III	2407.320	2406.590	450		516		CO	II	2409.137	2408.404	30		825	
AR	II	2407.379	2406.647	50		506		V	II	2409.163	2408.430	15	42.	478	
FE	II	2407.393	2406.660	155	2.	896	H	ZN	III	2409.18	2408.45	100		162	
CU	I	2407.398	2406.665	380	19.	672		MN	IV	2409.250	2408.515	30		799	
V	I	2407.481	2406.748	50	26.	1000		CR	I	2409.33	2408.60	50	36.	341	
NI	II	2407.607	2406.875	50	36.	835		CO	II	2409.352	2408.620	20	M	825	
FE	II	2407.7072	2406.9750	80	302.	896		FE	II	2409.383	2408.653	35	402.	488	
V	II	2407.722	2406.989	5	72.	478		CR	I	2409.45	2408.72		36.	341	
CL	II	2407.811	2407.079	8		613		CO	II	2409.480	2408.747	40	7.	825	H
V	III	2407.90	2407.17	400	10.	791		MN	II	2409.590	2408.857	60	37.	328	
FE	I	2407.920	2407.188	8		896	M	AR	II	2409.673	2408.943	10		506	
MN	II	2407.962	2407.230	12		328		MN	II	2409.787	2409.053	12		328	
CO	I	2407.980	2407.249	100	6.	603		KR	II	2409.800	2409.069	150		509	
CO	II	2407.99	2407.26	10		825		CO	I	2409.856	2409.123	20		603	
V	I	2408.122	2407.389	2		1000		MN	II	2409.90	2409.17	12		328	
CR	I	2408.14	2407.41	8	37.	341		MN	I	2409.931	2409.198	2		148	
V	I	2408.250	2407.517	5		489		NI	II	2409.942	2409.209	2		835	
CA	III	2408.259	2407.527	150		85		MN	III	2410.042	2409.309	10	14.	301	
FE	I	2408.259	2407.527	4		896	M	FE	II	2410.108	2409.377	5	150.	488	H
V	II	2408.325	2407.592	5	53.	478		CU	III	2410.147	2409.414	0		724	
KR	II	2408.325	2407.595	60		509		CR	II	2410.18	2409.45	1	282.	340	
MN	II	2408.340	2407.608	10		328		AR	II	2410.236	2409.503	20		506	
CO	II	2408.390	2407.658	40	16.	825		FE	II	2410.266	2409.535	0	377.	488	
FE	II	2408.495	2407.765	1	396.	488		CU	III	2410.305	2409.572	3		724	
AR	II	2408.594	2407.862	20		506		CO	I	2410.387	2409.654	8		603	
MN	II	2408.61	2407.88	2		328		AR	II	2410.435	2409.702	10		506	
ZN	III	2408.61	2407.88	3		162		FE	II	2410.439	2409.708	5	224.	488	H
NI	II	2408.622	2407.890	40		835		V	I	2410.455	2409.721	7		1000	
V	I	2408.633	2407.900	40	26.	1000		CU	III	2410.680	2409.947	1		724	
FE	II	2408.670	2407.940	20	116.	488	H	CR	II	2410.69	2409.96	5	170.	340	
CR	II	2408.75	2408.02	3	335.	340		NI	II	2410.760	2410.027	5		835	
FE	I	2408.7780	2408.0456	4	67.	896		CR	I	2410.91	2410.18	2	34.	341	
FE	I	2408.7947	2408.0623	4	68.	896		MN	III	2410.957	2410.220	40		802	
MN	III	2408.811	2408.078	10	14.	301		FE	II	2411.017	2410.286	5	376.	488	
NI	II	2408.843	2408.111	3		835		FE	II	2411.017	2410.286	5	181.	488	
MN	II	2408.890	2408.157	2		328		CR	II	2411.16	2410.43	3	170.	340	
AR	II	2408.9397	2408.2072	40		867		CO	I	2411.238	2410.504	40	124.	603	
S		2409.	2408.			107	N	FE	II	2411.251	2410.518	170	2.	896	H

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
KR	II	2411.295	2410.564	10		509		CO	I	2413.496	2412.762	12	10.	603	
MN	II	2411.320	2410.586	100	37.	328		FE	I	2413.500	2412.766	1	64.	378	
CU	III	2411.378	2410.645	3		724		V	I	2413.54	2412.81	1		489	
NI	II	2411.477	2410.744	10	18.	835		CA	V	2413.6	2412.9			726	F
CR	II	2411.48	2410.75	2	235.	340		CO	I	2413.630	2412.896	6		603	
V	I	2411.502	2410.768	2		1000		AR	II	2413.643	2412.910	10		506	
MN	II	2411.545	2410.811	12		328		NE	III	2413.67	2412.94	240		1031	
LI	II	2411.575	2410.842	60		307		V	I	2413.730	2413.031	60	23.	1000	
AR	II	2411.67	2410.94	10		506		NI	II	2413.773	2413.040	50	19.	835	
AR	III	2411.71	2410.98	10		337		CR	II	2413.79	2413.06	8	170.	340	
CR	II	2411.74	2411.01	15	170.	340		NE	III	2413.91	2413.18	160		1031	
FE	V	2411.77	2411.04	140	2.	229	F	CO	I	2413.921	2413.187	15	60.	603	
FE	II	2411.8009	2411.0678	20		896	H	CU	III	2413.921	2413.188	2		724	
AR	III	2411.82	2411.09	15		337		V	IV	2413.990	2413.256	20		829	
AS	II	2411.838	2411.105			425		FE	II	2414.0438	2413.3102	125	2.	896	H
AR	III	2411.90	2411.17	0		337		BE	II	2414.074	2413.340	1		332	
V	III	2411.91	2411.17	30		325		BE	II	2414.189	2413.455	7		332	
TI	I	2412.10	2411.37	20	11.	488		AR	II	2414.220	2413.486	10		506	
MN	I	2412.149	2411.415	2		148		SE	I	2414.25	2413.52	600	12.	600	
FE	I	2412.291	2411.558	1		378		V	IV	2414.258	2413.524	5		829	
TI	I	2412.31	2411.58	30	11.	488		NE	III	2414.27	2413.54	120		1031	
V	I	2412.324	2411.590	5		1000		CO	I	2414.314	2413.580	15	125.	603	
O	II	2412.33	2411.60	90		169		CR	III	2414.359	2413.637	200	59.	893	
CO	I	2412.352	2411.618	250	6.	603		CR	II	2414.37	2413.64	15	170.	340	
BR	II	2412.424	2411.692	0		606		MN	II	2414.37	2413.64	15		328	
FE	II	2412.5415	2411.8082	50		896		F	III	2414.415	2413.681	110		537	
FE	I	2412.701	2411.968	1	67.	378		MN	II	2414.51	2413.78	0		328	
FE	II	2412.752	2412.021	5	388.	489		NE	III	2414.51	2413.78	200		1031	
CU	III	2412.840	2412.107	290		724		V	III	2414.62	2413.89	200	10.	791	
AR	II	2412.857	2412.124	5		506		TI	III	2414.723	2413.989	775	9.	227	
FE	I	2412.906	2412.172	0		378		CO	II	2414.79	2414.06	30	7.	825	H
NI	II	2412.999	2412.265	10	11.	835		FE	II	2414.812	2414.080	5	164.	488	H
CR	I	2413.06	2412.33	1		341		MN	II	2414.82	2414.08	5		328	
CU	III	2413.072	2412.338	450	23.	724		CU	II	2414.9225	2414.1886	5		612	
AR	II	2413.194	2412.461	40		506		AR	II	2414.9557	2414.2218	90		867	
CL	II	2413.208	2412.475	19		613		B	IV	2415.0	2414.3	20		221	
NI	I	2413.372	2412.640	50	8.	488		FE	I	2415.052	2414.318	0	68.	378	
V	I	2413.420	2412.686	80	26.	1000		MN	II	2415.06	2414.33	8		328	
NE	III	2413.46	2412.73	300		1031		NI	I	2415.063	2414.329	10		835	
MN	II	2413.475	2412.740	50	37.	328		CO	I	2415.193	2414.458	40	6.	603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2415.38	2414.65	5		328		CU	I	2417.339	2416.605	5	33.	672	
SE	III	2415.50	2414.77	30		587		FE	II	2417.438	2416.705	5	286.	488	H
CU	II	2415.5913	2414.8573	4		612		MN	II	2417.447	2416.712	30		328	
FE	II	2415.644	2414.912	40	206.	488		V	I	2417.483	2416.748	150	26.	1000	
KR	II	2415.672	2414.940	250		509		FE	I	2417.525	2416.791	10		896	M
FE	II	2415.800	2415.068	40	181.	488	H	KR	II	2417.531	2416.798	120		509	
NI	II	2415.801	2415.067	5		835		CO	II	2417.625	2416.891	40	16.	825	
CR	I	2415.82	2415.09	2		341		CO	I	2417.780	2417.045	10		603	
CU	I	2415.932	2415.197	5		672		SI	II	2417.94	2417.20	2	34.	678	
CR	II	2415.96	2415.23	5	335.	340		AR	II	2417.9446	2417.2100	40		867	
NE	II	2415.997	2415.263	50		563		CU	III	2417.977	2417.243	5		724	
CO	II	2416.024	2415.299	M		825		CR	II	2418.05	2417.31	2	282.	340	
CO	I	2416.03	2415.29	4	6.	603		CO	I	2418.064	2417.329	25.		603	
CO	I	2416.05	2415.32	2		603		NE	II	2418.069	2417.334	60		563	
V	I	2416.061	2415.326	110	23.	1000		V	I	2418.086	2417.351	100	23.	1000	
CR	I	2416.14	2415.41	2		341		GE	I	2418.1017	2417.3672	200	8.	7	
NI	II	2416.236	2415.502	15		835		GA	III	2418.21	2417.48	250		402	
CO	I	2416.251	2415.516	3		603		FE	I	2418.225	2417.490	5	105.	896	
AR	III	2416.48	2415.75	60		337		MN	I	2418.237	2417.502	2		148	
FE	II	2416.509	2415.776	1	130.	488		AS	IV	2418.26	2417.53	1000		584	
AR	III	2416.68	2415.95	30		337		CO	II	2418.387	2417.652	50	7.	825	
FE	II	2416.706	2415.973	1	376.	488		MN	IV	2418.432	2417.698	0		799	
CO	II	2416.723	2415.989	40		825		NE	II	2418.477	2417.743	40		563	
F	III	2416.776	2416.042	150		537		N	II	2418.517	2417.784		18.0	521	P
AR	III	2416.78	2416.05	0		337		FE	I	2418.556	2417.821	10		896	M
FE	I	2416.814	2416.080	5		896	M	FE	II	2418.6054	2417.8707	80	244.	896	H
NI	II	2416.868	2416.134	440	20.	835	H	MN	I	2418.644	2417.909	2		148	
CO	II	2416.946	2416.212	30		825		MN	II	2418.676	2417.941	50	37.	328	
N	II	2416.986	2416.253		18.0	521	P	CO	II	2418.70	2417.96	10		825	
NI	II	2417.041	2416.306	30		835		FE	I	2418.763	2418.029	5		896	M
CO	II	2417.06	2416.33	15		825		MN	I	2418.777	2418.042	4		148	
MN	II	2417.081	2416.347	70	37.	328		KR	II	2418.959	2418.226	60		509	
CR	II	2417.14	2416.40	40	235.	340		MN	II	2419.014	2418.279	15		328	
CL	III	2417.15	2416.42	700	17.	38		SI	II	2419.02	2418.29	2	34.	678	
FE	II	2417.1799	2416.4456	20	396.	896		SI	III	2419.023	2418.281	G	75.	768	
CO	II	2417.18	2416.44	5		825		TI	I	2419.10	2418.37	100	11.	488	
NE	II	2417.232	2416.498	10		563		KR	II	2419.132	2418.399	150		509	
GE	I	2417.239	2416.505	10		7		FE	II	2419.1717	2418.4369	15	396.	896	
V	IV	2417.286	2416.552	30		829		CL	II	2419.185	2418.451	1		613	
SI	II	2417.33	2416.60	1	34.	678		CO	II	2419.208	2418.473	20		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	2419.212	2418.476	1		603		NE	II	2420.636	2419.901	40		563	
CR	I	2419.30	2418.56	1		341		CR	I	2420.72	2419.98	8	34.	341	
FE	III	2419.303	2418.568	120	47.	188		FE	II	2420.724	2419.989	8	396.	896	
CO	I	2419.315	2418.580	1		603		CU	III	2420.768	2420.033	15		724	
MN	II	2419.33	2418.60	1		328		MN	II	2420.80	2420.06	10		328	
GA	I	2419.42	2418.69	70	5.	488		V	II	2420.80	2420.07		41.	488	P
CO	II	2419.43	2418.70	7		825		CU	III	2420.823	2420.088	3		724	
FE	II	2419.436	2418.702	5	364.	488		MN	I	2420.846	2420.110	30	34.	148	
AR	II	2419.439	2418.704	10		506		CR	II	2420.85	2420.11	25	43.	340	
ZN	III	2419.46	2418.73	1000		162		V	I	2420.851	2420.115	100	26.	1000	
V	I	2419.473	2418.738	15	26.	1000		FE	I	2420.913	2420.178	5		896	M
NI	II	2419.624	2418.889	1		835		SI	II	2420.93	2420.19	3	34.	678	
MN	III	2419.659	2418.924	15		301		V	I	2420.957	2420.221	8		1000	
FE	I	2419.739	2419.004	4		896	M	SI	I	2420.97	2420.24	5	86.0	608	
FE	I	2419.7978	2419.0629	5	66.	896		MN	II	2420.997	2420.262	10		328	
CO	I	2419.857	2419.122	20		603		S		2421.	2420.			107	N
MN	II	2419.873	2419.138	20		328		SE	III	2421.00	2420.27	120		587	
AR	II	2419.899	2419.164	10		506		CL	II	2421.033	2420.298	5		613	
CR	I	2420.04	2419.30	1		341		NI	II	2421.053	2420.317	40		835	
NI	I	2420.044	2419.310	100	7.	488		KR	II	2421.068	2420.334	4		509	
CO	I	2420.059	2419.324	10		603		F	III	2421.126	2420.391	110		537	
MN	II	2420.09	2419.35	2		328		FE	I	2421.1313	2420.3961	60	64.	896	
ZN	III	2420.11	2419.38	2		162		MN	I	2421.139	2420.403	30	33.	148	
CR	II	2420.12	2419.38	15	43.	340		FE	III	2421.141	2420.405	25	103.	188	
AR	II	2420.148	2419.413	10		506		AR	II	2421.1914	2420.4561	110		867	
MN	II	2420.18	2419.44	1		328		CU	II	2421.21	2420.48	1		670	
CL	III	2420.2	2419.5	500	14.	43		CO	II	2421.27	2420.54	15		825	
FE	II	2420.219	2419.485	1	364.	488		CR	III	2421.274	2420.540	150		893	
MN	II	2420.36	2419.63	8		328		CU	I	2421.343	2420.606	1		672	
TI	III	2420.42	2419.69	3		227		V	I	2421.350	2420.614	3	24.	1000	
FE	III	2420.477	2419.742	10		188		MN	II	2421.454	2420.719	15		328	
P	III	2420.533	2419.798	150		935		CO	II	2421.458	2420.723	40		825	H
MN	II	2420.547	2419.811	20	37.	328		ZN	III	2421.46	2420.73	100		162	
CR	I	2420.56	2419.82	2	37.	341		CR	II	2421.47	2420.73	2		340	
CO	I	2420.564	2419.828	6	59.	603		CO	II	2421.68	2420.94	15		825	
CL	II	2420.571	2419.836	7		613		CO	II	2421.75	2421.02	12		825	
CU	III	2420.593	2419.858	30	23.	724		V	I	2421.794	2421.058	120	23.	1000	
CR	II	2420.61	2419.87	15	43.	340		MN	II	2421.84	2421.10	12		328	
FE	I	2420.6135	2419.8784	5	68.	896		O	III	2421.9	2421.2	0		168	
FE	II	2420.626	2419.892	5	180.	488		CR	I	2421.90	2421.16	1		341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
NI	I	2421.957	2421.223	35	6.	488		CL	II	2423.554	2422.818	13	.	613	
MN	I	2421.989	2421.254	20	34.	148		O	III	2423.57	2422.84	60	.	168	
TI	I	2422.04	2421.31	100	11.	488		S	III	2423.65	2422.91	7	.	598	
CR	I	2422.05	2421.31	1		341		F	III	2423.652	2422.916	110	.	537	
V	IV	2422.052	2421.317	50		829		FE	II	2423.667	2422.932	5	115.	488	
FE	III	2422.112	2421.376	10		188		CR	II	2423.67	2422.93	2	169.	340	
MN	II	2422.12	2421.38	10		328		NE	III	2423.7	2423.0	30	.	885	M
ZN	II	2422.18	2421.45	0		154		NE	II	2423.701	2422.965	60	.	563	
AR	II	2422.237	2421.502	30		506		V	II	2423.766	2423.030	6	24.	478	
FE	III	2422.250	2421.514	60	103.	188		NI	III	2423.79	2423.05	1	.	661	
CU	I	2422.381	2421.644	1		672		CU	III	2423.806	2423.070	2	.	724	
N	IV	2422.39	2421.65	40	18.98	824		FE	I	2423.8251	2423.0893	60	.	896	
CO	I	2422.424	2421.688	8	60.	603		SI	III	2423.831	2423.049	G	67.	75.	768
AS	II	2422.425	2421.689	1		425		MN	I	2423.835	2423.099	6	34.	148	
CR	I	2422.45	2421.71	10		341		FE	I	2423.8420	2423.1062	8	68.	896	
SI	II	2422.46	2421.72	3	34.	678		V	III	2423.93	2423.19	30	.	325	
AR	II	2422.557	2421.822	5		506		FE	II	2423.946	2423.210	40	301.	896	H
CU	III	2422.572	2421.836	140		724		CR	I	2423.98	2423.24	10	.	341	
FE	II	2422.632	2421.898	1	116.	488	H	MN	II	2424.00	2423.26	5	.	328	
CR	II	2422.64	2421.90	3	169.	340		NI	I	2424.057	2423.322	20	5.	488	
AS	II	2422.676	2421.940	1		425		ZN	III	2424.06	2423.33	500	.	162	
CU	II	2422.6785	2421.9429	2		612		V	I	2424.107	2423.370	40	23.	1000	
V	I	2422.712	2421.976	140	23.	1000		SI	II	2424.15	2423.42	3	34.	678	
CO	II	2422.77	2422.03	5		825		NE	II	2424.181	2423.445	70	.	563	
AR	II	2422.825	2422.089	20		506		FE	II	2424.235	2423.499	10	388.	896	
NE	II	2422.870	2422.135	10		563		CU	III	2424.238	2423.502	1	.	724	
AR	II	2422.991	2422.255	10		506		MN	III	2424.244	2423.508	10	14.	301	
CU	III	2423.002	2422.266	0		724		AR	II	2424.264	2423.528	50	.	506	
AL	III	2423.185	2422.406	3		826		CR	II	2424.27	2423.53	4	.	340	
CL	III	2423.20	2422.47	400	17.	38		CO	II	2424.38	2423.64	40	7.	825	
CO	I	2423.304	2422.568	30	123.	603		NI	I	2424.388	2423.653	20	11.	488	
CR	I	2423.31	2422.57	12	34.	341		MN	III	2424.467	2423.731	15	14.	301	
FE	II	2423.424	2422.688	60	301.	896	H	GA	III	2424.47	2423.73	350	.	402	
AR	II	2423.431	2422.695	40		506		CO	II	2424.536	2423.803	M	.	825	
MN	II	2423.45	2422.71	3		328		CO	II	2424.60	2423.86	15	.	825	
KR	II	2423.452	2422.717	10		509		MN	II	2424.617	2423.881	15	.	328	
ZN	III	2423.47	2422.74	3		162		FE	II	2424.654	2423.919	5	313.	488	
MN	II	2423.486	2422.749	15		328		CL	II	2424.734	2423.998	19	.	613	
F	III	2423.496	2422.760	150		537		NI	I	2424.762	2424.027	25	30.	488	
FE	I	2423.521	2422.785	8		896	M	AR	III	2424.81	2424.07	120	.	337	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	II	2424.84	2424.16	1		825		MN	II	2426.78	2426.04	1		328	
FE	II	2424.880	2424.144	125	180.	896	H	CU	III	2426.795	2426.058	0		724	
MN	II	2424.98	2424.24	5		328		FE	I	2426.814	2426.077	12		896	M
MN	I	2424.997	2424.260	30	34.	148		V	I	2426.863	2426.126	15	26.	1000	
TI	I	2425.00	2424.26	100	11.	488		CO	II	2426.87	2426.13	25		825	
P	V	2425.08	2424.34	7		597		CO	II	2426.98	2426.24	5		825	
MN	I	2425.122	2424.385	1	34.	148		F	III	2427.001	2426.264	150		537	
FE	II	2425.126	2424.390	15	149.	896	H	FE	I	2427.050	2426.313	1		378	
P	V	2425.139	2424.403	375		524		NI	II	2427.053	2426.316	3		835	
AR	III	2425.14	2424.40	20		337		O	III	2427.09	2426.35	1		168	
CU	II	2425.1703	2424.4341	75	76.	612		KR	II	2427.100	2426.364	250		509	
NE	II	2425.290	2424.554	30		563		N	IV	2427.28	2426.54	5	18.98	824	
FE	II	2425.320	2424.585	40	301.	488	H	CU	II	2427.295	2426.559	2		612	
FE	II	2425.329	2424.592	30	180.	896	H	MN	II	2427.30	2426.56	0		328	
CR	III	2425.34	2424.60	1		490		CR	I	2427.40	2426.66	7	84.	341	
NI	II	2425.359	2424.623	2		835		C	II	2427.44	2426.70	10	25.	287	
AR	III	2425.37	2424.63	0		337		ZN	III	2427.53	2426.79	10		162	
CR	I	2425.39	2424.65	3		341		O	III	2427.68	2426.94	10		168	
AR	II	2425.395	2424.659	40		506		ZN	III	2427.68	2426.94	500		162	
N	IV	2425.47	2424.73	20	18.98	824		CO	I	2427.734	2426.997	12		603	
MN	II	2425.48	2424.74	1		328		CU	II	2427.734	2426.997	1		612	
V	III	2425.51	2424.77	10	10.	791		CO	II	2427.787	2427.056	M		825	
CO	I	2425.669	2424.932	250	5.	603		FE	II	2427.814	2427.077	1		1026	
KR	II	2425.800	2425.065	90		509		CR	II	2427.86	2427.12	1		340	
CR	II	2425.95	2425.21	18	43.	340		MN	II	2427.865	2427.127	5		328	
B	II	2426.007	2425.271	50		532		ZN	III	2427.87	2427.13	10		162	
FE	II	2426.100	2425.363	5	210.	896	H	FE	II	2427.936	2427.199	12	114.	896	H
LI	I	2426.162	2425.426	15	4.	488		NI	III	2427.95	2427.21	20	32.	661	
CR	I	2426.20	2425.46	1		341		FE	II	2428.018	2427.281	12		896	
CR	I	2426.26	2425.52	2		341		V	II	2428.053	2427.316	20	41.	478	
CO	I	2426.330	2425.593	8	59.	603		MN	II	2428.115	2427.379	140	74.	328	
MN	II	2426.343	2425.606	10		328		AS	II	2428.150	2427.414	1		425	
O	II	2426.36	2425.62	60		168		CR	II	2428.42	2427.68	4	202.	340	
FE	I	2426.374	2425.638	20		896	P	V	III	2428.43	2427.69	10	10.	791	
CR	II	2426.40	2425.66	15	43.	340	M	MN	II	2428.455	2427.719	220	74.	328	
MN	II	2426.419	2425.683	1		328		V	I	2428.472	2427.735	20	25.	1000	
FE	II	2426.422	2425.685	10	224.	896	H	CL	II	2428.523	2427.786	130	11.	613	
FE	II	2426.640	2425.904	20	130.	488		P	III	2428.574	2427.837	120		936	
MN	II	2426.65	2425.92	5		328		CR	I	2428.66	2427.92	8	84.	341	
O	III	2426.67	2425.93	10		168		MN	II	2428.676	2427.939	170	74.	328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CL	II	2428.745	2428.008	29	.	613		MN	II	2430.16	2429.41	0		328	
FE	II	2428.815	2428.079	1	114.	488		FE	I	2430.169	2429.431	1	68.	378	
CU	III	2428.888	2428.151	75		724		AR	II	2430.183	2429.446	20		506	
TI	I	2428.98	2428.24	20	10.	488		ZN	III	2430.20	2429.46	10		162	
V	I	2429.007	2428.269	100	23.	1000		FE	II	2430.234	2429.497	20	180.	468	H
MN	I	2429.023	2428.286	8	34.	148		KR	II	2430.256	2429.519	1		509	
CO	II	2429.025	2428.288	40	7.	825		O	III	2430.33	2429.59	1		175	P
FE	II	2429.029	2428.292	30	301.	896		CR	III	2430.497	2429.760	200		893	
CR	II	2429.03	2428.29	2	246.	340		NE	II	2430.510	2429.773	30		563	
MN	III	2429.059	2428.321	2		802		LI	II	2430.551	2429.814	I		307	
KR	II	2429.070	2428.334	250		509		FE	I	2430.5524	2429.8150	10	68.	896	
TI	I	2429.10	2428.36	20	11.	488		FE	II	2430.598	2429.860	30		896	
FE	II	2429.101	2428.364	110	300.	896	H	CR	I	2430.63	2429.89	6	84.	341	
MN	I	2429.160	2428.423	25	34.	148		CO	II	2430.659	2429.922	20		825	
SI	II	2429.18	2428.45	10	34.	678		NE	II	2430.755	2430.018	60		563	
NE	II	2429.188	2428.451	60		563		KR	II	2430.768	2430.031	10		509	
AR	II	2429.260	2428.523	10		506		AR	II	2430.770	2430.032	50		506	
MN	I	2429.324	2428.586	2		148		MN	III	2430.799	2430.061	10		301	
CO	I	2429.334	2428.596	10		603		FE	II	2430.815	2430.078	110	180.	896	H
FE	I	2429.378	2428.641	5		896	M	CL	II	2430.871	2430.133	140	11.	613	
MN	II	2429.44	2428.70	1		328		NI	III	2430.88	2430.14	1		661	
NE	II	2429.444	2428.707	60		563		CL	II	2430.895	2430.157	140	11.	613	
FE	II	2429.538	2428.800	25	301.	896		NE	II	2430.902	2430.164	60		563	
FE	III	2429.54	2428.80	F	114.	188		CO	I	2430.914	2430.176	10		603	
MN	II	2429.60	2428.86	1		328		FE	II	2430.921	2430.184	20	301.	488	
CR	I	2429.63	2428.89	4	52.	341		FE	I	2430.929	2430.192	2	157.	378	
ZN	II	2429.64	2428.90	0		154		MN	II	2430.93	2430.19	5		328	
CU	II	2429.6651	2428.9279	15		612		AL	VI	2431.	2430.			108	F
FE	II	2429.707	2428.970	60	375.	488		CU	III	2431.082	2430.345	170		724	
FE	II	2429.773	2429.035	25	301.	896		FE	V	2431.12	2430.38			229	F
NI	I	2429.829	2429.092	5	55.	488		MN	I	2431.133	2430.395	35	33.	148	
FE	II	2429.889	2429.152	10	385.	896		N	IV	2431.15	2430.41	40	18.93	824	
MN	III	2429.909	2429.172	5		301		FE	I	2431.170	2430.433	6		896	M
CO	I	2429.964	2429.226	25	7.	603		MN	II	2431.22	2430.48	2		328	
MN	I	2429.971	2429.233	30	33.	148		CO	II	2431.23	2430.49	4		825	
MN	II	2430.034	2429.297	20		328		CU	III	2431.266	2430.528	100		724	
NE	II	2430.049	2429.312	30		563		CR	II	2431.33	2430.59	1		340	
O	III	2430.09	2429.35	4		175		CU	II	2431.4152	2430.6777	1		612	
SI	III	2430.09	2429.35	80	75.	768		C	II	2431.52	2430.78	4	38.	287	
FE	II	2430.124	2429.386	20	148.	896	H	FE	I	2431.576	2430.838	5		896	M



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	II	2431.619	2430.881	6	375.	896		FE	I	2433.140	2432.402	0	34.	378	
NE	II	2431.704	2430.966	5		563		CU	II	2433.158	2432.420	1		612	
FE	I	2431.762	2431.025	20		605	N	MN	III	2433.18	2432.44	7		301	
FE	II	2431.763	2431.025	25		896		V	IV	2433.256	2432.518	10		829	
N	IV	2431.81	2431.07	20	18.93	824		CO	II	2433.26	2432.52	80		825	
CA	III	2431.820	2431.082	250		85		NI	II	2433.408	2432.670	20		835	
ZN	III	2431.83	2431.09	10		162		FE	II	2433.439	2432.701	5	321.	488	
CL	II	2431.895	2431.157	2		613		ZN	II	2433.48	2432.74	10		154	
MN	II	2431.96	2431.22	3		328		CU	III	2433.493	2432.755	0		724	
FE	II	2431.973	2431.236	30	375.	488		CO	II	2433.558	2432.825	M		825	
C	VI	2431.99	2431.25			309		MN	II	2433.61	2432.87	0		328	
FE	III	2432.063	2431.325	60	114.	188		FE	II	2433.611	2432.873	60	321.	896	
MN	II	2432.07	2431.33	8		328		C	II	2433.63	2432.90	1	52.	287	
MN	I	2432.258	2431.520	40	34.	148		MN	I	2433.637	2432.898	7	33.	148	
N	IV	2432.28	2431.55	1	18.93	824		P	I	2433.68	2432.94	1		594	
NI	II	2432.299	2431.561	40	49.	835		V	II	2433.714	2432.976	20	41.	478	
V	I	2432.306	2431.568	10	24.	1000		CR	I	2433.73	2432.99	3		341	
MN	I	2432.325	2431.587	4		148		FE	II	2433.788	2433.050	10	384.	488	
V	II	2432.33	2431.59	4	190.	478		FE	I	2433.794	2433.056	2	68.	378	
AR	II	2432.36	2431.62	20		506		CO	II	2433.808	2433.079	M		825	
O	II	2432.40	2431.66	1		168		ZN	II	2433.869	2433.131	5		154	
CR	I	2432.41	2431.67	3	84.	341		CR	II	2433.94	2433.20	25	202.	340	
CU	III	2432.466	2431.728	3		724		TI	I	2433.97	2433.23	60	10.	488	
CO	I	2432.48	2431.74	1		603		S		2434.	2433.			107	N
V	IV	2432.622	2431.885	30		829		CL	II	2434.014	2433.276	7		613	
MN	I	2432.653	2431.915	10	34.	148		MN	II	2434.048	2433.310	30		328	
AR	II	2432.661	2431.923	10		506		CA	III	2434.063	2433.325	200		85	
V	I	2432.678	2431.940	20	25.	1000		KR	II	2434.150	2433.412	1		509	
V	I	2432.752	2432.014	25	23.	1000		NE	II	2434.210	2433.472	40		563	
FE	I	2432.768	2432.030	8		896	M	MN	III	2434.222	2433.484	15	14.	301	
NE	II	2432.834	2432.096	40		563		C	II	2434.23	2433.49	1	38.	287	
C	II	2432.86	2432.12	1	52.	287		FE	II	2434.233	2433.495	70	164.	488	H
MN	II	2432.89	2432.16	3		328		CU	III	2434.237	2433.499	3		724	
CO	I	2432.952	2432.213	40	5.	603		FE	II	2434.238	2433.500	6	164.	896	H
NI	I	2432.96	2432.22	10		602		V	IV	2434.269	2433.530	50		829	
FE	II	2432.9995	2432.2616	80	180.	896	H	NI	II	2434.294	2433.556	100	19.	835	H
MN	II	2433.02	2432.28	2		328		O	II	2434.30	2433.56	200	18.	488	
FE	I	2433.070	2432.332	1	106.	378		FE	II	2434.309	2433.571	5	359.	488	
MN	I	2433.098	2432.360	8		148		CR	II	2434.46	2433.72	2		340	
FE	V	2433.12	2432.38			229	F	CR	III	2434.479	2433.741	4	59.	893	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MA	II	2434.48	2433.74	0		328		CO	I	2435.833	2435.094	20		603	
CO	I	2434.49	2433.75	0		603		MN	I	2435.876	2435.137	40	33.	148	
MN	II	2434.58	2433.84	12		328		CO	I	2435.889	2435.151	M		825	
F	III	2434.680	2433.942	110		537		SI	I	2435.8931	2435.1545	300	45.	608	
CU	III	2434.742	2434.004	2		724		MN	II	2435.896	2435.156	25		328	
FE	II	2434.797	2434.059	25	375.	896		MN	II	2435.988	2435.251	5		328	
CL	II	2434.807	2434.069	190	11.	613		MN	II	2436.05	2435.32	0		328	
MN	II	2434.81	2434.07	0		328		CR	III	2436.069	2435.330	250	59.	893	
MN	I	2434.810	2434.071	30	33.	148		MN	I	2436.115	2435.376	5	33.	148	
TI	I	2434.83	2434.09	30	11.	488		NI	II	2436.230	2435.491	8		835	
F	III	2434.843	2434.105	250		537		MN	I	2436.250	2435.511	20	33.	148	
CL	II	2434.852	2434.114	130	11.	613		V	I	2436.257	2435.518	100	23.	1000	
MN	NI	2434.947	2434.208	35	33.	148		SE	III	2436.26	2435.52	10		587	
CR	I	2434.96	2434.22	4	96.	341		CR	I	2436.33	2435.59	1		341	
NI	III	2434.97	2434.23	30	26.	661		F	IV	2436.36	2435.62	10		173	
FE	II	2434.975	2434.237	20	384	896		NE	II	2436.385	2435.646	60		563	
C	II	2434.98	2434.24	10	511	287		CR	I	2436.43	2435.69	1		341	
ZN	III	2435.01	2434.27	100		162		ZN	II	2436.50	2435.76	15		154	
NI	II	2435.058	2434.319	2		835		FE	II	2436.555	2435.816	5	164.	488	H
AR	II	2435.0986	2434.3602	20		867		CO	I	2436.562	2435.823	10		603	
CR	I	2435.10	2434.36	2		341		CU	III	2436.563	2435.824	230		724	
CU	III	2435.109	2434.370	15		724		FE	I	2436.609	2435.870	15		896	M
FE	II	2435.136	2434.398	1	301.	488		NI	II	2436.697	2435.958	8		835	
NI	I	2435.150	2434.412	10	53.	488		AS	II	2436.7001	2435.9614	210		425	
AS	II	2435.295	2434.557	20		425		CO	II	2436.71	2435.97	M		825	
NE	II	2435.349	2434.611	40		563		CL	III	2436.8	2436.1	500	26.	43	
MN	II	2435.36	2434.62	2		328		O	II	2436.80	2436.06	60		168	
NE	II	2435.374	2434.636	20		563		CU	III	2436.846	2436.107	3		724	
FE	II	2435.387	2434.648	20	301	896		FE	II	2436.958	2436.219	4	209.	896	H
MN	II	2435.45	2434.72	25		328		F	III	2436.964	2436.225	30		537	
FE	II	2435.468	2434.729	50	321.	896	H	CL	II	2436.980	2436.241	17		613	
C	II	2435.55	2434.81	4	51.	287		MN	II	2437.00	2436.26	1		328	
FE	II	2435.560	2434.822	50	375.	488	H	N	II	2437.030	2436.291		18.0	521	P
V	II	2435.68	2434.94	5	24.	478		NI	II	2437.052	2436.313	5		835	
FE	II	2435.690	2434.951	50	180.	896	H	CO	II	2437.07	2436.33	M		825	
O	III	2435.698	2434.959	10		1032		CR	III	2437.084	2436.345	25	43.	893	
CR	I	2435.72	2434.98	1		341		FE	I	2437.085	2436.346	20		896	M
FE	I	2435.741	2435.002	25	383.	896		CU	III	2437.127	2436.388	10		724	
CU	III	2435.787	2435.048	15		724		GE	I	2437.1509	2436.4120	50		7	
CL	III	2435.8	2435.1	200		43		FE	II	2437.152	2436.413	1	360.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CO	II	2437.175	2436.436	5		825		O	II	2438.83	2438.09	4		168	
KR	II	2437.197	2436.458	90		509		CR	I	2438.84	2438.10	3	96.	341	
NI	V	2437.2	2436.5			922	F P	CU	III	2438.869	2438.130	2		724	
NE	II	2437.211	2436.472	10		563		ZN	III	2438.91	2438.17	50		162	
MN	II	2437.277	2436.538	30		328		FE	III	2438.914	2438.174	150	47.	188	
V	II	2437.309	2436.570	5		478		FE	I	2438.9212	2438.1819	60	62.	896	
FE	II	2437.361	2436.622	25	384.	896		MN	II	2438.926	2438.187	100	74.	328	
CO	II	2437.39	2436.65			825		CO	I	2438.941	2438.201	1		603	
CO	I	2437.397	2436.657	50	5.	603		AR	II	2438.952	2438.213	10		506	
NE	II	2437.508	2436.769	5		563		CR	I	2438.96	2438.22	2		341	
CO	I	2437.526	2436.786	3		603		MG	VII	2439.	2438.			108	F
CU	III	2437.582	2436.843	5		724		TI	I	2439.02	2438.28	20	10.	488	
CO	II	2437.717	2436.978	30	7.	825		CU	III	2439.053	2438.356	10		724	
MN	II	2437.73	2436.99	15		328		CO	II	2439.15	2438.41	3		825	
FE	II	2437.735	2436.995	10	375.	896		CO	I	2439.151	2438.411	2		603	
FE	II	2437.837	2437.100	50	375.	488		CR	II	2439.20	2438.46	35	202.	340	
MN	II	2437.85	2437.11	2		328		MN	II	2439.217	2438.478	20		328	
FE	II	2437.894	2437.157	40	210.	488	H	CO	III	2439.50	2438.76	3	74.	673	
CU	III	2437.907	2437.168	10		724		CR	I	2439.50	2438.76	2		341	
AR	II	2437.939	2437.200	10		506		SI	I	2439.5069	2438.7674	65	2.	608	
FE	I	2437.942	2437.203	15		896	M	CR	II	2439.61	2438.87	5		340	
AS	I	2437.97	2437.23	50	5.	480		GA	II	2439.62	2438.88	120		652	
CO	II	2437.99	2437.25			825		O	III	2439.64	2438.90	60		168	P
FE	II	2437.993	2437.256	40	313.	488		MN	II	2439.67	2438.93	10		328	
FE	II	2437.996	2437.256	3		645		NI	II	2439.737	2438.997	2		935	
F	II	2438.059	2437.320	4		538		AS	II	2439.751	2439.011	1		425	
MN	II	2438.105	2437.366	170	74.	328		CR	I	2439.76	2439.02	7	96.	341	
ZN	III	2438.22	2437.48	80		162		CO	I	2439.778	2439.038	20	5.	603	
CU	III	2438.221	2437.482	4		724		CO	II	2439.78	2439.04	50		825	
CR	II	2438.24	2437.50	1		340		V	I	2439.842	2439.102	50	24.	1000	
AR	II	2438.256	2437.517	20		506		NE	II	2439.859	2439.119	50		563	
FE	II	2438.369	2437.632	200	375.	488		FE	I	2439.910	2439.170	10	64.	896	
FE	I	2438.390	2437.650	5		896	M	CU	III	2440.009	2439.269	20		724	
P	II	2438.50	2437.76	0		496		CO	II	2440.03	2439.29	1		825	
CU	III	2438.513	2437.774	3		724		FE	II	2440.0411	2439.3015	125	209.	896	H
MN	II	2438.582	2437.844	140	74.	328		ZN	II	2440.2	2439.5	15		154	
MN	III	2438.596	2437.853	60		802		CO	I	2440.235	2439.495	8		603	
NI	II	2438.631	2437.892	220	19.	835	H	FE	I	2440.370	2439.630	15		896	
V	II	2438.779	2438.039	10		478		CL	III	2440.43	2439.69	500	26.	43	
MN	II	2438.811	2438.072	15		328		AR	II	2440.46	2439.72	10		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2440.484	2439.744	125	157.	896		CR	I	2442.04	2441.30	3		341	
V	II	2440.514	2439.774	4		478		MN	III	2442.062	2441.319	80		802	
FE	II	2440.598	2439.860	80	375.	468		NI	II	2442.070	2441.330	10		835	
CR	II	2440.62	2439.88	4		340		V	I	2442.092	2441.352	15	25.	1000	
MN	II	2440.63	2439.89	1		328		NE	II	2442.177	2441.437	50		563	
SI	II	2440.693	2439.953	0	21.	678		O	III	2442.177	2441.439	0		1032	
FE	III	2440.703	2439.963	25		188		MN	II	2442.211	2441.471	10	105.	328	
AR	II	2440.768	2440.028	40		506		FE	II	2442.286	2441.548	5	210.	488	
CU	III	2440.812	2440.072	170		724		F	III	2442.345	2441.605	375		537	
FE	I	2440.849	2440.109	80	157.	896		MN	II	2442.348	2441.609	5		328	
CO	I	2440.881	2440.141	4		603		CU	I	2442.378	2441.637	320	1.	672	
V	III	2440.89	2440.16	1		325		NI	I	2442.403	2441.665	10	31.	488	
TI	II	2440.95	2440.21	50	21.	488		V	II	2442.404	2441.664	4	93.	478	
BE	IV	2440.957	2440.217			309		O	II	2442.41	2441.67	10		168	
CL	II	2441.078	2440.338	35		613		CO	II	2442.44	2441.70	15		825	
MN	I	2441.157	2440.415	2		148		O	III	2442.478	2441.740	10		1032	
FE	II	2441.163	2440.423	40	300.	896	H	NI	I	2442.555	2441.817	50	31.	488	
MN	II	2441.193	2440.453	30		328		V	I	2442.632	2441.892	30	23.	1000	
CL	II	2441.206	2440.466	8		613		CU	III	2442.674	2441.933	15		724	
CR	II	2441.22	2440.48	2		340		ZN	III	2442.70	2441.96	100		162	
CL	II	2441.265	2440.525	5		613		AR	II	2442.766	2442.026	5		506	
FE	I	2441.325	2440.585	12		896	M	SE	I	2442.81	2442.07	40		600	
NE	II	2441.375	2440.635	10		563		FE	I	2442.871	2442.130	20		896	M
FE	I	2441.487	2440.748	15		896	M	SC	IV	2442.885	2442.147	20		720	
P	V	2441.49	2440.75	40		597		NE	II	2442.895	2442.155	20		563	
CU	III	2441.624	2440.884	5		724		CR	I	2443.05	2442.31	2		341	
V	III	2441.66	2440.92	0		325		FE	II	2443.115	2442.374	30		896	
P	V	2441.674	2440.934	450		524		CL	III	2443.21	2442.47	500	17.	38	
SE	III	2441.68	2440.94	50		587		CL	II	2443.288	2442.548	53		613	
TI	I	2441.72	2440.98	100	10.	488		CA	III	2443.291	2442.551	200	9.	64	
CL	II	2441.738	2440.997	7		613		FE	I	2443.307	2442.567	100	157.	896	
P	V	2441.78	2441.04	3		597		MN	II	2443.31	2442.57	0		328	
CO	I	2441.780	2441.040	20	132.	603		CU	III	2443.322	2442.582	120		724	
MN	II	2441.797	2441.056	40		328		CO	II	2443.33	2442.59	30		825	
O	III	2441.80	2441.06	10		168		CO	I	2443.36	2442.62	2		603	
FE	II	2441.868	2441.128	10	395.	896		S	III	2443.36	2442.62	50	17.	323	
MN	II	2441.879	2441.139	20		328		CO	II	2443.40	2442.66	20		825	
MN	II	2441.97	2441.23	1		328		CU	II	2443.4054	2442.6651	20	103.	612	
P	V	2441.979	2441.239	200		524		TI	II	2443.41	2442.67	20	21.	488	
AR	II	2442.028	2441.288	20		506		MN	II	2443.42	2442.68	10		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AR	II	2443.534	2442.794	20		506		ZN	III	2445.67	2444.93	100		162	
MN	II	2443.56	2442.82	20		328		V	II	2445.708	2444.967	60	92.	478	
CO	I	2443.629	2442.888	4		603		AR	II	2445.737	2444.996	5		506	
CL	II	2443.665	2442.925	2		613		CR	II	2445.83	2445.09	10	190.	340	
KR	II	2443.702	2442.963	1		509		FE	II	2445.847	2445.106	50	375.	896	
F	III	2443.796	2443.055	12		537		V	II	2445.848	2445.107	6	39.	478	
CO	I	2443.92	2443.18	0		603		NE	II	2445.878	2445.137	20		563	
AR	II	2443.960	2443.219	20		506		CR	II	2445.88	2445.14	7		340	
CR	I	2443.99	2443.25	2	96.	341		AS	II	2445.907	2445.166	2		425	
CU	II	2444.0666	2443.326	20		612		FE	I	2445.9534	2445.2125	50	63.	896	
CR	II	2444.09	2443.35	5	189.	340		V	I	2445.965	2445.224	3	24.	1000	
SI	I	2444.1048	2443.364	65	2.	608		V	II	2446.077	2445.336	4		478	
MN	II	2444.15	2443.414	15		328		CL	II	2446.087	2445.346	70		613	
AR	II	2444.23	2443.49	10		506		CO	I	2446.094	2445.353	2		603	
CO	I	2444.289	2443.548	5	57.	603		GE	IV	2446.12	2445.38	15		406	
CU	III	2444.442	2443.701	20		724		O	II	2446.29	2445.55	250	18.	488	
FE	II	2444.450	2443.709	60		896		CO	II	2446.30	2445.56	1		825	
CO	II	2444.515	2443.774	30	16.	825		FE	II	2446.314	2445.573	100	148.	896	H
MN	II	2444.550	2443.809	20		328		MN	IV	2446.334	2445.592	50		799	
FE	II	2444.581	2443.842	150	375.	488		MN	II	2446.428	2445.686	30		328	
MN	II	2444.59	2443.85	15		328		GE	IV	2446.45	2445.71	15		406	
FE	I	2444.6127	2443.872	155	63.	896		CO	I	2446.498	2445.756	3		603	
MN	II	2444.688	2443.946	1		328		CR	I	2446.50	2445.76	1		341	
CO	II	2444.77	2444.03	12		825		FE	II	2446.538	2445.797	40	300.	896	
CR	II	2444.82	2444.08	7	190.	340		MN	II	2446.66	2445.91	0		328	
CL	II	2444.862	2444.122	26		613		CU	III	2446.683	2445.942	2		724	
CU	III	2444.863	2444.122	10		724		CO	II	2446.753	2446.012	30		825	
CR	II	2444.94	2444.20	7	190.	340		AS	IV	2446.80	2446.06	600		594	
CU	III	2444.974	2444.233	200		724		V	IV	2446.812	2446.071	30		829	
O	II	2445.00	2444.26	60	18.	488		CR	II	2446.85	2446.11	10	328.	340	
FE	II	2445.013	2444.274	100	375.	488		FE	II	2446.852	2446.111	50	300.	896	
NE	II	2445.045	2444.304	10		563		TI	I	2446.86	2446.12	20	10.	489	
CU	III	2445.180	2444.439	1000	20.	724		V	I	2446.891	2446.150	3		489	
FE	II	2445.256	2444.515	100	148.	896	H	MN	I	2446.900	2446.159	1		148	
MN	II	2445.26	2444.51	40		328		CU	III	2446.905	2446.164	15		724	
CO	II	2445.26	2444.52	2		825		MN	II	2446.93	2446.19	5		328	
AR	II	2445.589	2444.828	30		506		FE	II	2446.943	2446.203	0	209.	488	H
CU	III	2445.605	2444.864	5		724		CR	I	2447.03	2446.29	2		341	
FE	I	2445.646	2444.905	1		378		FE	I	2447.062	2446.321	10		896	M
CO	II	2445.65	2444.91	1		825		AR	II	2447.096	2446.355	10		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2447.12	2446.38	60	105.	328		AR	II	2448.484	2447.743	20		506	
FE	II	2447.148	2446.407	15		375.		FE	II	2448.497	2447.755	30	320.	896	H
FE	II	2447.212	2446.471	30		164.	H	CR	II	2448.50	2447.76	3	306.	340	
KR	II	2447.216	2446.476	250		509		MN	II	2448.544	2447.803	8		328	
CO	II	2447.30	2446.56	15		825		CO	II	2448.566	2447.825	40		625	
MN	I	2447.303	2446.561	2		148		CR	I	2448.64	2447.90	1		341	
MN	II	2447.330	2446.590	10	105.	328		TI	II	2448.66	2447.92	20	21.	488	
MN	I	2447.352	2446.610	2		148		CO	II	2448.68	2447.94	15		825	
MN	II	2447.41	2446.66	2		328		MN	II	2448.697	2447.956	20		328	
V	II	2447.439	2446.697	30	41.	478		CO	II	2448.79	2448.05	8		825	
CU	III	2447.484	2446.743	200		724		NI	II	2448.821	2448.080	1		835	
V	III	2447.54	2446.80	50		325		AR	II	2448.90	2448.16	0		506	
V	IV	2447.543	2446.802	50		829		ZN	III	2448.91	2448.17	30		162	
MN	II	2447.544	2446.803	5		328		CL	II	2448.944	2448.202	10		613	
NI	III	2447.59	2446.85	1		661		CU	II	2448.9564	2448.2148	10		612	
MN	II	2447.629	2446.888	20		328		O	III	2448.995	2448.255	4		1032	
AS	II	2447.632	2446.890	5		425		NI	III	2449.090	2448.347	100	23.	661	
CR	II	2447.65	2446.91	15	190.	340		V	II	2449.20	2448.46	5		478	
KR	II	2447.655	2446.915	25		509		CO	I	2449.247	2448.505	2		603	
O	III	2447.66	2446.92	0		168		MN	II	2449.277	2448.535	0		328	
NI	II	2447.755	2447.013	10		835		FE	I	2449.311	2448.570	0		378	
CR	I	2447.85	2447.11	2		341		CL	III	2449.32	2448.58	600	17.	38	
CL	III	2447.88	2447.14	600	17.	38		MN	II	2449.34	2448.59	10		328	
MN	II	2447.910	2447.170	10		328		GE	II	2449.420	2448.678	3		676	
FE	II	2447.945	2447.204	40	300.	896	H	MN	II	2449.43	2448.68	10		328	
FE	V	2447.97	2447.23			229	F	FE	II	2449.471	2448.731	5	222.	488	
NI	II	2447.998	2447.257	3		835		MN	II	2449.508	2448.766	10		328	
FE	II	2448.068	2447.327	25	299.	896	H	MN	I	2449.790	2449.047	2		148	
CL	II	2448.081	2447.340	2		613		CO	II	2449.899	2449.157	40	7.	825	
FE	III	2448.116	2447.374	120	143.	188		AR	II	2449.9237	2449.1819	20		867	
NI	II	2448.134	2447.373	30		835		FE	II	2449.925	2449.185	5	129.	488	H
CO	II	2448.24	2447.50	10		825		NI	II	2449.976	2449.234	5		835	
CU	III	2448.250	2447.508	170		724		CR	I	2449.99	2449.25	2		341	
ZN	III	2448.27	2447.53	20		162		FE	II	2450.012	2449.272	1	128.	488	
FE	II	2448.300	2447.560	5	299.	488		NI	II	2450.089	2449.347	15		835	
NI	II	2448.332	2447.590	5		835		O	IV	2450.12	2449.37	300		86	
V	II	2448.350	2447.608	20	93.	478		V	IV	2450.146	2449.404	40		829	
MN	II	2448.438	2447.697	5		328		AR	II	2450.149	2449.407	20		506	
CO	II	2448.44	2447.70	M		825		CU	III	2450.166	2449.424	10		724	
FE	I	2448.4508	2447.7093	60	9.	896		MN	II	2450.180	2449.438	5		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
SI	III	2450.226	2449.484	200	78.	768		AR	II	2451.779	2451.037	10		506	
F	III	2450.280	2449.538	200		537		P	I	2451.79	2451.05	7		496	
MG	II	2450.314	2449.573	60	5.	488		O	III	2451.83	2451.09	1		168	
FE	I	2450.332	2449.590	8		896	M	FE	II	2451.847	2451.106	20	34.	488	H
MN	II	2450.344	2449.602	10		328		CU	III	2451.879	2451.137	1		724	
CR	II	2450.37	2449.63	25	190.	340		FE	II	2451.949	2451.208	40	209.	488	H
V	IV	2450.464	2449.723	20		829		ZN	III	2451.96	2451.22	10		162	
FE	II	2450.480	2449.739	5	34.	488	H	CO	I	2451.980	2451.237	1		603	
MN	II	2450.484	2449.742	40		328		FE	II	2452.095	2451.354	5	300.	488	
V	I	2450.52	2449.78	1		489		FE	II	2452.095	2451.354	5	114.	488	
CR	I	2450.55	2449.81	3		341		CR	I	2452.10	2451.36	3		341	
CR	II	2450.69	2449.95	25	190.	340		FE	I	2452.127	2451.384	2		378	
O	VII	2450.7	2450.0			97		CR	I	2452.25	2451.51	3		341	
FE	II	2450.707	2449.965	25	300.	896	H	F	IV	2452.32	2451.58	40		173	
CO	II	2450.741	2449.999	40	16.	825	H	CR	II	2452.37	2451.63	7	245.	340	
FE	II	2450.774	2450.032	12		896		FE	I	2452.418	2451.675	20		896	
O	IV	2450.78	2450.04	300		86		CU	III	2452.464	2451.722	3		724	
GA	I	2450.819	2450.078	40	4.	488		CO	I	2452.490	2451.747	3		603	
FE	II	2450.875	2450.134	50	375.	488		MN	II	2452.543	2451.800	20		328	
FE	II	2450.947	2450.205	25	300.	896		CU	III	2452.547	2451.805	50		724	
V	II	2450.979	2450.236	10		478		O	III	2452.662	2451.921	10		1032	
ZN	III	2451.01	2450.27	500		162		CO	II	2452.73	2451.99	4		825	
FE	II	2451.022	2450.280	5		1026		CR	II	2452.78	2452.04	4	310.	340	
MN	II	2451.064	2450.317	2		328		F	III	2452.813	2452.070	450		537	
V	IV	2451.071	2450.329	20		829		CR	I	2452.85	2452.11	2		341	
CR	II	2451.11	2450.37	20	190.	340		SI	I	2452.8605	2452.1180	70	2.	608	
TI	II	2451.18	2450.44	60	21.	488		FE	I	2452.882	2452.139	12		896	M
FE	I	2451.186	2450.444	12		896		CO	III	2452.90	2452.16	10	74.	673	
NI	I	2451.206	2450.465	5	57.	488		MN	II	2452.900	2452.157	8	105.	328	
CO	II	2451.21	2450.47	2		825		NI	II	2452.902	2452.160	8		835	
AR	II	2451.283	2450.541	10		506		FE	I	2452.914	2452.172	2	105.	378	
V	II	2451.362	2450.619	9	92.	478		FE	II	2452.949	2452.206	5		1026	
F	V	2451.37	2450.63	10		172		CL	II	2453.060	2452.318	26		613	
CU	III	2451.436	2450.694	1		724		MN	II	2453.072	2452.328	60	105.	328	
V	II	2451.477	2450.734	20	41.	478		FE	I	2453.088	2452.345	1		378	
CR	II	2451.54	2450.80	5		340		N	II	2453.171	2452.430		20.0	521	P
NI	II	2451.581	2450.839	100		835		NI	II	2453.218	2452.476	2		835	
CR	III	2451.599	2450.858	1		893		MN	II	2453.229	2452.486	170	74.	328	
V	IV	2451.611	2450.869	50		829		CU	III	2453.256	2452.513	25		724	
NI	I	2451.716	2450.975	40		488	N	SE	III	2453.26	2452.52	1		587	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	II	2453.30	2452.56	25		825		CO	II	2454.92	2454.18	15		825	
FE	I	2453.333	2452.590	6	157.	896		O	III	2454.95	2454.21	F		175	
CU	III	2453.411	2452.668	5		724		MN	I	2455.005	2454.262	6		148	
CR	II	2453.45	2452.71	18	328.	340		MN	II	2455.01	2454.26	10		328	
AR	II	2453.486	2452.743	20		506		AR	II	2455.013	2454.270	80		506	
V	II	2453.516	2452.773	4		478		CU	III	2455.055	2454.312	5		724	
FE	II	2453.658	2452.916	5	300.	488		CR	II	2455.21	2454.47	30	74.	340	
CU	II	2453.694	2452.952	1		612		P	II	2455.25	2454.51	15		496	
CU	III	2453.723	2452.980	230		724		N	II	2455.296	2454.554		20.0	521	P
CR	I	2453.82	2453.08	1		341		FE	II	2455.321	2454.578	30	320.	896	H
MN	II	2453.876	2453.133	100	74.	328		MN	II	2455.389	2454.646	5		328	
CR	I	2453.88	2453.14	2		341		V	II	2455.398	2454.654	2		478	
FE	II	2453.893	2453.153	12	386.	896		V	I	2455.53	2454.79	1		489	
P	II	2453.99	2453.25	3		496		CU	III	2455.562	2454.819	5		724	
V	II	2454.089	2453.346	80	92.	478		NE	III	2455.72	2454.98	100		1031	
MN	II	2454.114	2453.371	10		328		O	III	2455.73	2454.99	150	19.	168	
CO	I	2454.125	2453.382	4		603		CR	II	2455.74	2455.00	2	310.	340	
FE	I	2454.2185	2453.4756	100	62.	896		MN	XII	2455.8	2455.1			726	F
FE	I	2454.311	2453.568	3	157.	378		AR	II	2455.823	2455.080	50		506	
O	III	2454.345	2453.603	10		1032		MN	II	2455.826	2455.083	10		328	
MN	II	2454.364	2453.620	80	74.	328		CR	II	2455.89	2455.15	12	310.	340	
MN	II	2454.464	2453.721	8		328		NE	II	2455.892	2455.149	20		563	
FE	II	2454.489	2453.747	150	375.	488		CR	III	2455.919	2455.177	200		893	
CU	III	2454.501	2453.758	8		724		AR	II	2455.978	2455.235	10		506	
FE	II	2454.540	2453.797	10	163.	896	H	MN	II	2456.101	2455.358	15		328	
MN	II	2454.57	2453.83	8		328		V	I	2456.15	2455.41	2		489	
CO	II	2454.58	2453.84	2		825		SC	III	2456.26	2455.52	2		855	
BE	II	2454.587	2453.844	15	6.	332		NI	II	2456.263	2455.519	30	18.	835	
V	II	2454.600	2453.857	3		478		FE	I	2456.311	2455.567	20		896	M
MN	I	2454.613	2453.870	6		148		AR	II	2456.371	2455.628	10		506	
N	III	2454.63	2453.89	40	28.	521		NI	II	2456.394	2455.651	5		835	
CR	II	2454.67	2453.90	1	328.	340		CR	I	2456.41	2455.67	1		341	
FE	II	2454.677	2453.935	250	375.	488		FE	I	2456.435	2455.692	15		896	M
NI	V	2454.7	2454.0			922	F P	CR	I	2456.45	2455.71	2		341	
FE	II	2454.719	2453.976	20	401.	896		FE	II	2456.452	2455.708	15	395.	896	
NI	I	2454.726	2453.984	20		488		FE	II	2456.463	2455.721	20	395.	488	
AS	IV	2454.77	2454.03	1000	6.	584		F	III	2456.531	2455.788	50		537	
CR	II	2454.80	2454.06	15	74.	340		NE	II	2456.540	2455.796	5		563	
CO	II	2454.83	2454.09	1		825		FE	II	2456.641	2455.898	15	384.	896	
FE	II	2454.900	2454.158	20	222.	488		NE	II	2456.730	2455.987	20		563	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	II	2456.752	2456.009	2		612		CR	I	2458.60	2457.86	4		341	
MN	II	2456.85	2456.10	2		328		NI	II	2458.609	2457.865	30		835	
FE	I	2456.932	2456.189	40		896	M	MN	II	2458.624	2457.880	8	105.	328	
CR	II	2456.97	2456.23	3		340		GE	II	2458.625	2457.881	5		676	
CO	I	2456.981	2456.237	20	57.	603		AR	II	2458.698	2457.954	20		506	
AR	II	2457.010	2456.266	20		506		TI	I	2458.74	2458.00	20	9.	488	
CR	I	2457.02	2456.28	8		341		ZN	III	2458.74	2458.00	10		162	
CU	III	2457.243	2456.499	3		724		O	III	2458.81	2458.07	0		1032	
V	II	2457.252	2456.508	3	41.	478		N	II	2458.818	2458.075		20.0	521	P
GE	II	2457.255	2456.512	0		676		MN	III	2458.909	2458.165	5		301	
AS	I	2457.27	2456.53	200	5.	480		MN	II	2458.973	2458.229	5		328	
CR	I	2457.28	2456.54	1		341		V	II	2459.033	2458.288	50	39.	478	
FE	III	2457.315	2456.571	10		188		MN	I	2459.053	2458.312	2		148	
AR	II	2457.36	2456.61	10		506		MN	II	2459.06	2458.32	15		328	
FE	II	2457.384	2456.641	20	320.	488		NE	II	2459.092	2458.348	40		563	
FE	I	2457.447	2456.704	1	106.	378		CR	I	2459.17	2458.43	3		341	
MN	II	2457.512	2456.768	15		328		AS	II	2459.181	2458.437	0		425	
FE	II	2457.559	2456.816	20	209.	488	H	FE	II	2459.270	2458.527	10		292	
CR	III	2457.560	2456.817	350	43.	893		FE	I	2459.3118	2458.5678	25	59.	896	
MN	I	2457.622	2456.878	3		148		MN	II	2459.322	2458.577	60	105.	328	
F	IV	2457.66	2456.92	60		173		CU	III	2459.435	2458.691	290		724	
CR	II	2457.68	2456.94	8	310.	340		MN	II	2459.477	2458.733	30		328	
CR	I	2457.82	2457.08	4		341		CR	I	2459.48	2458.74	2		341	
FE	II	2457.839	2457.095	15	269.	896		CO	II	2459.504	2458.761	2		825	
FE	I	2458.083	2457.340	10		896	M	FE	II	2459.528	2458.784	125	209.	896	H
MN	II	2458.134	2457.390	10		328		SI	V	2459.53	2458.79	20		941	
V	II	2458.190	2457.446	30	91.	478		CU	II	2459.55	2458.81	2		670	
AR	II	2458.269	2457.525	10		506		AS	II	2459.581	2458.837	2		425	
NE	III	2458.29	2457.55	40		1031		MN	II	2459.61	2458.86	0		328	
CR	II	2458.33	2457.59	2	281.	340		CU	I	2459.64	2458.88	5		672	
FE	I	2458.3416	2457.5978	380	62.	896		MN	II	2459.680	2458.935	0		328	
CU	II	2458.377	2457.633	1		612		CR	III	2459.707	2458.964	250	43.	893	
CU	III	2458.405	2457.661	30		724		FE	II	2459.717	2458.973	40	299.	896	H
NI	II	2458.467	2457.723	3		835		MN	II	2459.786	2459.042	10		328	
CU	I	2458.48	2457.74	5		672		FE	II	2459.840	2459.097	20	312.	488	H
O	III	2458.513	2457.770	0		1032		FE	II	2459.840	2459.097	20	163.	488	H
FE	II	2458.528	2457.785	1	299.	488		MN	II	2459.879	2459.135	3		328	
MN	II	2458.530	2457.785	20		328		NI	II	2459.924	2459.180	20	61.	835	
TI	I	2458.54	2457.80	20	9.	488		V	II	2459.978	2459.233	5	92.	478	
V	II	2458.547	2457.803	5		478		CO	II	2459.99	2459.25	4		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
N	III	2460.00	2459.26	1	28.	521		CR	II	2461.48	2460.77	15	310.	340	
FE	II	2460.039	2459.296	0	382.	488		CO	I	2461.545	2460.800	20	5.	603	
NA	III	2460.050	2459.307	750		516		CR	III	2461.57	2460.83			893	F P
CR	II	2460.09	2459.35	8	168.	340		CU	II	2461.606	2460.861	1		612	
V	II	2460.103	2459.358	15	92.	478		MN	I	2461.632	2460.887	40	32.	148	
CU	III	2460.140	2459.396	200		724		ZN	III	2461.66	2460.92	10		162	
CO	II	2460.198	2459.454	30		825		CU	I	2461.67	2460.93	5		672	
MN	II	2460.27	2459.53	8		328		CR	I	2461.70	2460.96	2		341	
SE	III	2460.28	2459.54	150		587		MN	I	2461.756	2461.011	50	32.	148	
MN	II	2460.31	2459.56	8		328		FE	I	2461.803	2461.059	25		896	M
CR	II	2460.32	2459.58	3		340		MN	II	2461.84	2461.09	5		328	
AR	II	2460.345	2459.601	10		506		AR	II	2461.948	2461.203	10		506	
CO	II	2460.42	2459.68	4		825		NE	II	2461.986	2461.241	50		563	
B	II	2460.434	2459.690	100		532		CO	II	2462.01	2461.26	10		825	
MN	I	2460.439	2459.694	50		148		N	II	2462.015	2461.270	160	23.	200	
CL	II	2460.606	2459.862	47		613		FE	II	2462.028	2461.283	80	209.	896	H
B	II	2460.639	2459.895	100		532		MN	II	2462.05	2461.31	0		328	
AR	II	2460.6968	2459.9525	70		867		F	V	2462.07	2461.33	4		172	
MN	II	2460.70	2459.96	2		328		AS	IV	2462.17	2461.43	800		584	
NI	II	2460.783	2460.038	50		835		V	II	2462.240	2461.495	40	52.	478	
FE	I	2460.813	2460.069	1		378		MN	II	2462.271	2461.525	20		328	
FE	II	2460.898	2460.154	6	401.	896		CO	I	2462.307	2461.562	2		603	
CO	I	2460.939	2460.195	20		603		FE	II	2462.413	2461.668	10	163.	896	H
CR	I	2460.94	2460.20	3		341		AS	II	2462.430	2461.685	170		425	
AS	II	2460.979	2460.235	50		425		CR	II	2462.49	2461.75	2		340	
MN	II	2461.01	2460.26	5		328		NI	II	2462.508	2461.763	10		835	
V	III	2461.04	2460.29	20		325		N	II	2462.58	2461.83	1	53.	200	
FE	I	2461.043	2460.299	10		896		MN	II	2462.599	2461.853	50		328	
CU	III	2461.047	2460.302	15		724		FE	II	2462.605	2461.860	100	209.	896	H
CR	II	2461.16	2460.42	30	168.	340		CR	II	2462.68	2461.93	5	245.	340	
ZN	III	2461.16	2460.42	50		162		CU	III	2462.726	2461.981	170		724	
FE	II	2461.185	2460.440	60	395.	896		ZN	III	2462.75	2462.01	50		162	
S	III	2461.24	2460.50	250	17.	323		P	IV	2462.793	2462.048	4		937	
CR	II	2461.29	2460.55	10		340		CO	I	2462.867	2462.122	20		603	
MN	II	2461.34	2460.59	1		328		MN	II	2462.870	2462.125	10		328	
AR	II	2461.379	2460.635	20		506		AS	II	2462.871	2462.126	2		425	
EE	II	2461.388	2460.644	20	359.	488		FE	I	2462.879	2462.134	10		896	M
SC	III	2461.405	2460.661			863		P	IV	2462.904	2462.159	4		937	
MN	II	2461.438	2460.694	40		328		FE	I	2462.9257	2462.1808	100	9.	896	
V	II	2461.47	2460.73	1		478		MN	I	2462.935	2462.190	7	32.	148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	III	2462.993	2462.248	2		724		F	IV	2464.53	2463.79	10		173	
MN	II	2463.018	2462.276	8		328		V	IV	2464.541	2463.796	10		829	
FE	II	2463.069	2462.325	5	395.	498		CU	III	2464.605	2463.860	140		724	
NE	III	2463.09	2462.35	120		1031		FE	II	2464.645	2463.900	50	385.	488	
CR	II	2463.10	2462.35	15	168.	340		MN	II	2464.668	2463.923	20		328	
MN	II	2463.154	2462.409	20		328		AS	II	2464.739	2463.993	150		425	
F	III	2463.220	2462.475	50		537		TI	II	2464.74	2464.00	10		601	
AR	II	2463.298	2462.553	10		506		AS	IV	2464.75	2464.00	100		584	
N	III	2463.30	2462.56	4	28.	521		CR	I	2464.75	2464.00	1		341	
ZN	III	2463.30	2462.56	40		162		CO	II	2464.75	2464.01	20		825	
MN	I	2463.341	2462.596	3	32.	148		FE	II	2464.754	2464.009	40	208.	896	H
CU	II	2463.359	2462.614	3		612		P	IV	2464.78	2464.04	1		597	
FE	I	2463.3521	2462.6472	380	9.	896		V	II	2464.840	2464.094	15	22.	478	
MN	I	2463.521	2462.776	20	32.	148		CO	II	2464.945	2464.200	50	15.	825	
CR	II	2463.57	2462.82	1	168.	340		CU	II	2465.052	2464.307	1		612	
MN	I	2463.608	2462.863	5	32.	148		CR	II	2465.06	2464.31	4	168.	340	
CU	III	2463.699	2462.954	100		724		CO	I	2465.204	2464.459	2		603	
FE	I	2463.712	2462.967	40		896		SC	IV	2465.204	2464.459	360		720	
FE	III	2463.723	2462.978	25		188		CR	II	2465.23	2464.48	3		340	
AR	II	2463.743	2462.998	20		506		MN	II	2465.31	2464.57	10		328	
MN	I	2463.750	2463.005	40	32.	148		FE	II	2465.314	2464.569	1		1026	
N	III	2463.78	2463.04	0	28.	521		SE	III	2465.36	2464.61	1		587	
CU	III	2463.804	2463.059	10		724		CO	I	2465.360	2464.615	3	7.	603	
V	II	2463.902	2463.157	3	91.	478		CR	II	2465.37	2464.62	7	168.	340	
FE	I	2463.904	2463.159	15		896	M	V	II	2465.40	2464.65	1	22.	478	
MN	I	2463.927	2463.182	6	32.	148		V	IV	2465.465	2464.720	2		829	
MN	II	2464.022	2463.277	10		328		MN	II	2465.48	2464.74	15		328	
FE	II	2464.037	2463.292	50	208.	896	H	AS	II	2465.4834	2464.7380	170		425	
ZN	III	2464.04	2463.30	100		162		KR	II	2465.52	2464.77	100	9.	488	
CR	I	2464.12	2463.37	2		341		NI	III	2465.544	2464.800	0	22.	661	
NE	III	2464.12	2463.38	40		1031		F	III	2465.595	2464.850	520		537	
CR	II	2464.21	2463.46	8	92.	340		FE	II	2465.650	2464.904	40	208.	896	H
CR	I	2464.24	2463.49	5	33.	341		CR	II	2465.69	2464.94	8	168.	340	
CO	II	2464.33	2463.59	6		825		V	I	2465.698	2464.953	2		1000	
ZN	III	2464.39	2463.65	80		162		TI	I	2465.711	2464.966	20	9.	488	
CU	III	2464.402	2463.657	5		724		MN	II	2465.824	2465.075	30		328	
FE	II	2464.471	2463.726	20	162.	488		CO	I	2465.857	2465.111	3		603	
FE	II	2464.471	2463.726	20	129.	488		FE	I	2465.8942	2465.1487	280		896	
FE	I	2464.4756	2463.7304	50	65.	896		FE	II	2465.945	2465.199	10	148.	896	H
CO	I	2464.521	2463.776	4	7.	603		MN	II	2465.97	2465.22	2		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
NI	I	2466.008	2465.263	10	8.	488		CL	II	2467.474	2466.729	3		613	
V	II	2466.016	2465.270	150	92.	478		FE	I	2467.512	2466.766	20		896	M
CR	I	2466.05	2465.30	3		341		FE	II	2467.564	2466.819	60	179.	896	H
MN	II	2466.16	2465.41	2		328		AR	II	2467.594	2466.848	10		506	
NI	II	2466.238	2465.493	15		835		CO	II	2467.61	2466.86	7		825	
CR	I	2466.25	2465.50	5		341		NI	I	2467.706	2466.960	5	56.	488	
MN	II	2466.34	2465.59	2		328		MN	II	2467.73	2466.99	5		328	
AS	II	2466.348	2465.602	125		425		MN	II	2467.790	2467.044	15		328	
CR	II	2466.36	2465.61	18	281.	340		CO	II	2467.793	2467.047	25		825	
V	I	2466.410	2465.664	10		1000		ZN	III	2467.80	2467.05	1000		162	
FE	I	2466.411	2465.666	15		896	M	CR	I	2467.89	2467.14	8	33.	341	
CR	I	2466.49	2465.74	4		341		GE	II	2467.937	2467.191	0		676	
CR	II	2466.53	2465.78	18	281.	340		F	III	2468.002	2467.256	4		537	
CU	III	2466.594	2465.848	100		724		V	IV	2468.033	2467.287	20		829	
FE	I	2466.621	2465.876	15		896	M	CO	II	2468.06	2467.31	10		825	
CR	I	2466.65	2465.90	2		341		SC	IV	2468.108	2467.362	1		720	
FE	II	2466.658	2465.912	50	208.	896	H	GE	I	2468.1141	2467.3681	40		7	
NI	II	2466.686	2465.940	3		835		NI	II	2468.126	2467.380	5		935	
MN	II	2466.691	2465.944	10		328		CL	II	2468.270	2467.524	1		613	
MN	II	2466.76	2466.02	8		328		AR	II	2468.29	2467.55	0		506	
AR	II	2466.86	2466.12	10		506		MN	II	2468.292	2467.546	5		328	
F	II	2466.899	2466.153	60		538		FE	I	2468.313	2467.567	30		896	
MN	II	2466.960	2466.214	100	64.	328		NI	II	2468.393	2467.647	20		835	
CR	II	2466.97	2466.22	10	74.	340		MN	II	2468.428	2467.685	5		328	
N	III	2466.99	2466.24	4	28.	521		CO	I	2468.432	2467.685	20	5.	603	
CU	III	2467.043	2466.297	3		724		FE	II	2468.478	2467.732	60	387.	488	
CR	I	2467.09	2466.34	1		341		FE	I	2468.4782	2467.7321	60	62.	896	
CO	II	2467.16	2466.41	3		825		MG	III	2468.50	2467.75	360	5.	2	
MN	II	2467.161	2466.415	80	64.	328		MN	II	2468.503	2467.757	15		328	
NI	II	2467.216	2466.470	8		835		MN	II	2468.59	2467.84	10		328	
CR	II	2467.23	2466.48	25	310.	340		P	IV	2468.606	2467.860	4		937	
CR	I	2467.24	2466.49	7	33.	341		CU	III	2468.619	2467.873	25		724	
FE	II	2467.242	2466.496	15		896		MN	II	2468.724	2467.978	70	64.	328	
NI	III	2467.272	2466.525	1	22.	661		FE	I	2468.74	2467.99	25		896	M
FE	I	2467.276	2466.530	1	65.	378		CR	II	2468.87	2468.12	2		340	
CR	II	2467.39	2466.64	5		340		V	I	2468.884	2468.138	3		1000	
FE	II	2467.417	2466.671	60	179.	896	H	CU	III	2468.937	2468.191	50		724	
FE	I	2467.441	2466.695	30		896	M	FE	II	2468.940	2468.194	5	332.	488	
MN	II	2467.469	2466.723	3		328		NE	III	2468.95	2468.20	80		1031	
NI	III	2467.47	2466.72	0	32.	661		MN	I	2468.954	2468.207	2	31.	148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2468.988	2468.241	30	64.	328		NI	II	2470.267	2469.520	3		835	
FE	II	2469.038	2468.292	70	163.	488	H	CO	II	2470.29	2469.54	7		825	
FE	II	2469.042	2468.295	15	145.	896	H	MN	II	2470.35	2469.60	1		328	
CR	I	2469.08	2468.33	10		341		FE	I	2470.412	2469.666	1	10.	378	
CU	II	2469.0942	2468.3479	10		612		CR	I	2470.45	2469.70	4		341	
TI	I	2469.106	2468.360	20	9.	488		FE	II	2470.456	2469.712	80	382.	488	
N	III	2469.11	2468.36	1	28.	521		FE	II	2470.567	2469.823	20	358.	488	
CL	III	2469.12	2468.37	300	13.	38		AR	II	2470.6239	2469.8773	30		867	
MN	II	2469.155	2468.409	5		328		CR	II	2470.70	2469.95	10	309.	340	
CU	III	2469.157	2468.411	340		724		NE	II	2470.749	2470.002	20		563	
CU	II	2469.2468	2468.5005	45	93.	612		MN	II	2470.76	2470.01	15		328	
FE	II	2469.307	2468.561	5	113.	488		NI	II	2470.773	2470.026	1		835	
V	II	2469.400	2468.654	8	23.	478		CR	I	2470.81	2470.06	1		341	
CR	II	2469.42	2468.67	1	189.	340		CO	I	2471.017	2470.270	20	57.	603	
NI	II	2469.457	2468.711	1		835		CR	I	2471.02	2470.27	1		341	
CU	III	2469.471	2468.725	230		724		F	III	2471.038	2470.291	520		537	
CU	III	2469.524	2468.777	10		724		CA	III	2471.039	2470.292	160		64	
MN	II	2469.532	2468.786	5		328		O	II	2471.04	2470.30			108	F
CR	III	2469.572	2468.828	4		893		MN	I	2471.077	2470.330	4		148	
NI	II	2469.594	2468.848	2		835		MN	II	2471.08	2470.33	5		328	
NA	III	2469.600	2468.856	540		516		AS	II	2471.100	2470.353	150		425	
ZN	III	2469.61	2468.87	500		162		AR	II	2471.1048	2470.3581	50		867	
FE	I	2469.6258	2468.8795	240	59.	896		FE	II	2471.154	2470.408	25	208.	896	H
NI	III	2469.67	2468.92	1		661		NI	II	2471.176	2470.429	2		835	
CU	III	2469.733	2468.987	50		724		F	III	2471.233	2470.486	200		537	
FE	III	2469.872	2469.126	25		188		NI	II	2471.250	2470.503	1		835	
CR	II	2469.88	2469.13	20	92.	340		CO	II	2471.39	2470.64	1		825	
TI	II	2469.89	2469.15	10		601		FE	II	2471.417	2470.670	80	179.	896	H
NE	II	2469.938	2469.192	5		563		FE	II	2471.511	2470.764	10	223.	896	H
CL	III	2469.94	2469.20	500	13.	43		CR	II	2471.56	2470.81	8	92.	340	
CL	II	2470.009	2469.262	3		613		CU	I	2471.58	2470.83	0		672	
CO	II	2470.01	2469.26	M		825		MN	II	2471.596	2470.879	10		328	
MN	II	2470.040	2469.292	30		328		CR	II	2471.62	2470.87	12	309.	340	
CR	I	2470.10	2469.35	2		341		FE	I	2471.625	2470.879	20		896	M
FE	II	2470.117	2469.373	5	162.	488	H	CR	I	2471.63	2470.88	12	33.	341	
V	II	2470.135	2469.388	5	40.	478		FE	I	2471.7123	2470.9655	80	63.	896	
CR	II	2470.15	2469.40	20	310.	340		TI	I	2471.72	2470.98	30	9.	488	
MN	I	2470.154	2469.407	40	31.	148		AR	II	2471.799	2471.052	10		506	
CU	III	2470.179	2469.433	1		724		F	III	2471.806	2471.059	30		537	
FE	II	2470.260	2469.514	60	299.	896	H	CL	III	2471.81	2471.07	500	14.	43	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2471.866	2471.119	25	52.	478		CO	I	2473.670	2472.922	7	57.	603	
CO	II	2471.88	2471.13	2		825		FE	II	2473.782	2473.037	5	400.	488	
MN	II	2471.91	2471.16	3		328		MN	II	2473.81	2473.06	2		328	
N	III	2471.98	2471.24	0	28.	521		NI	II	2473.832	2473.085	50		835	
MN	II	2472.00	2471.25	5		328		NI	II	2473.895	2473.148	100	19.	835	
FE	II	2472.021	2471.276	5	394.	488		FE	I	2473.904	2473.156	450	8.	896	
V	I	2472.190	2471.443	10	20.	1000		AR	II	2473.987	2473.240	5		506	
CU	III	2472.201	2471.454	1		724		ZN	III	2474.03	2473.28	100		162	
FE	II	2472.419	2471.674	1	162.	488		FE	II	2474.069	2473.321	50	148.	896	H
AR	II	2472.49	2471.74	5		506		CU	II	2474.0812	2473.3337	50	76.	612	
MN	II	2472.726	2471.979	10		328		FE	I	2474.134	2473.386	30		896	M
NI	I	2472.810	2472.065	30	7.	488		NE	III	2474.15	2473.40	200		1031	
CO	NI	2472.81J	2472.066	3		603		NI	II	2474.192	2473.444	2		835	
FE	II	2472.819	2472.072	6	162.	896	H	V	I	2474.274	2473.527	6		1000	
AS	II	2472.821	2472.074	0		425		CR	I	2474.28	2473.53	1	33.	341	
AS	II	2472.876	2472.129	0		425		MN	II	2474.304	2473.556	30		328	
MN	II	2472.88	2472.14	1		328		MN	II	2474.372	2473.625	5		328	
NI	I	2472.969	2472.224	5	7.	488		V	I	2474.400	2473.652	5	59.	1000	
NI	II	2473.029	2472.282	10		835		FE	I	2474.419	2473.671	15		896	M
CU	I	2473.07	2472.32	0		672		MN	II	2474.438	2473.691	10		328	
FE	I	2473.0830	2472.3359	280	63.	896		ZN	III	2474.57	2473.82	50		162	
FE	I	2473.0987	2472.3515	280		896		CO	I	2474.649	2473.901	8	5.	603	
MN	II	2473.121	2472.370	25		328		AR	II	2474.745	2473.998	40		506	
FE	II	2473.175	2472.428	40	179.	896	H	FE	II	2474.801	2474.054	30		896	
K	VI	2473.2	2472.5			726	F	CR	I	2474.83	2474.08	15	32.	341	
ZN	IV	2473.23	2472.46	15		154		CU	II	2474.8874	2474.1398	5		612	
NI	II	2473.254	2472.507	15		835		TI	II	2474.97	2474.22	20	2.	488	
CA	III	2473.288	2472.541	200	9.	64		AR	II	2475.000	2474.252	10		506	
MN	II	2473.328	2472.581	5		328		CR	I	2475.02	2474.27	4	33.	341	
FE	II	2473.352	2472.605	40	395.	896		AS	II	2475.074	2474.327	2		425	
AR	II	2473.359	2472.612	10		506		FE	I	2475.190	2474.442	60		896	M
ZN	III	2473.38	2472.63	100		162		CU	III	2475.251	2474.503	3		724	
FE	I	2473.390	2472.643	20		896	M	CR	I	2475.30	2474.55	8	32.	341	
NI	V	2473.4	2472.7			922	F	O	III	2475.365	2474.619	1		1032	
CL	II	2473.441	2472.694	8		613	P	CO	I	2475.450	2474.702	5		603	
MN	II	2473.594	2472.847	60		328		NA	III	2475.480	2474.734	600		516	
CR	III	2473.614	2472.869	500	43.	893		FE	II	2475.514	2474.766	10	208.	896	H
V	II	2473.618	2472.870	5	22.	478		FE	I	2475.5617	2474.8139	240	62.	896	
FE	I	2473.6421	2472.8948	320	9.	896		CU	I	2475.566	2474.818	5		672	
NI	I	2473.662	2472.917	20		408	N	NI	II	2475.598	2474.850	10		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2475.638	2474.890	30		328		AR	II	2477.46	2476.71	5		506	
CR	II	2475.65	2474.90	20		340		MN	II	2477.57	2476.83	5		328	
CR	III	2475.652	2474.906	150		893		FE	I	2477.6132	2476.8650	15	65.	896	
MN	II	2475.715	2474.967	50		328		NI	I	2477.621	2476.875	15	3.	488	
FE	I	2475.767	2475.019	10		896		CR	II	2477.65	2476.90	20	145.	340	
LI	I	2475.807	2475.061	25	3.	488		V	II	2477.712	2476.963	1	22.	478	
MN	II	2475.843	2475.095	10		328		AR	II	2477.7185	2476.9702	20		867	
CU	III	2475.864	2475.116	170		724		CR	II	2477.75	2477.00	12		340	
FE	II	2475.865	2475.117	50	395.	896		MN	II	2477.79	2477.04	1		328	
NI	II	2475.895	2475.147	1		835		FE	II	2477.864	2477.117	0	311.	488	
V	I	2475.926	2475.178	10		1000		CU	II	2477.87	2477.12	2		670	
AL	II	2476.006	2475.260	25	12.	488		MN	II	2477.933	2477.185	15		328	
F	IV	2476.06	2475.31	1		173		NI	II	2477.94	2477.193	1		835	
CO	II	2476.07	2475.32	1		825		TI	II	2477.96	2477.21	20	2.	468	
F	III	2476.157	2475.409	12		537		CL	III	2478.04	2477.29	200	13.	38	
CU	III	2476.176	2475.428	50		724		CO	II	2478.046	2477.298	30		825	
V	II	2476.199	2475.451	20	71.	478		FE	II	2478.091	2477.342	25	162.	896	H
AR	II	2476.210	2475.462	40		506		CO	II	2478.229	2477.481	25		825	
MN	II	2476.247	2475.498	30		328		FE	II	2478.247	2477.498	10	113.	896	
FE	II	2476.289	2475.541	40	395.	896		NE	II	2478.292	2477.544	40		563	
MN	III	2476.37	2475.62	1		301		CO	II	2478.34	2477.59	12		825	
CR	II	2476.44	2475.69	30	92.	340		CU	III	2478.341	2477.593	1		724	
O	III	2476.48	2475.73	0		163		N	IV	2478.44	2477.69	285	18.99	824	
MN	II	2476.499	2475.751	8		328		CR	II	2478.45	2477.70	15		340	
NI	II	2476.606	2475.858	2		835		P	IV	2478.572	2477.823	200		937	
V	II	2476.613	2475.865	30	71.	478		CL	II	2478.623	2477.874	5		613	
MN	II	2476.77	2476.02	15		328		FE	I	2478.655	2477.907	20		896	M
FE	I	2476.779	2476.031	0		896	M	MN	II	2478.70	2477.95	1		328	
CR	I	2476.82	2476.07	1		341		F	IV	2478.80	2478.05	4		173	
FE	II	2477.010	2476.262	15	163.	896	H	FE	I	2478.806	2478.057	10		896	M
V	II	2477.043	2476.295	5	52.	478		P	IV	2478.818	2478.070	150		937	
CO	I	2477.18	2476.43	1		603		FE	II	2478.861	2478.112	10	224.	896	H
FE	II	2477.183	2476.437	0	386.	488		V	IV	2478.868	2478.119	1		829	
CU	II	2477.1925	2476.4444	15		612		CO	II	2478.942	2478.193	15		825	
CO	II	2477.21	2476.46	15		825		FE	II	2478.953	2478.206	20	149.	488	H
FE	I	2477.219	2476.471	40		896		CU	III	2478.984	2478.236	290		724	
V	I	2477.258	2476.510	8	59.	1000		NE	II	2478.987	2478.239	10		563	
CR	III	2477.287	2476.541	60		893		P	IV	2479.005	2478.256	250		937	
CO	I	2477.388	2476.640	40	56.	603		MN	II	2479.034	2478.284	15		328	
FE	I	2477.4047	2476.6566	60	62.	896		CO	II	2479.041	2478.292	20		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	2479.042	2478.293	2		603		FE	I	2480.379	2479.630	25		896	M
V	II	2479.089	2478.340	1	40.	478		AL	V	2480.50	2479.75	20		873	
MN	II	2479.16	2478.41	20		328		CU	I	2480.503	2479.754	10	34.	672	
FE	II	2479.196	2478.449	20	161.	488	H	F	IV	2480.52	2479.77	1		173	
MN	II	2479.23	2478.48	18		328		NI	I	2480.52	2479.77	10		602	
NI	II	2479.246	2478.497	10		835		FE	I	2480.5250	2479.7761	340	9.	896	
CO	II	2479.30	2478.55	4		825		ZN	III	2480.55	2479.80	100		162	
C	I	2479.310	2478.561	800	61.	821		CR	III	2480.561	2479.814	650	43.	893	
FE	II	2479.320	2478.571	60	179.	896	H	CR	I	2480.69	2479.94	1		341	
V	II	2479.370	2478.621	20	52.	478		NI	II	2480.721	2479.972	1		835	
TI	II	2479.39	2478.64	50	2.	488		CR	I	2480.85	2480.10	2		341	
GE	II	2479.408	2478.659	100	18.	676		FE	II	2480.862	2480.115	285	179.	488	H
NE	II	2479.474	2478.726	5		563		CO	II	2480.90	2480.15	1		825	
F	III	2479.481	2478.732	450		537		FE	II	2480.906	2480.157	100		896	
TI	II	2479.52	2478.77	10		601		FE	I	2480.936	2480.187	25		896	M
CR	II	2479.53	2478.78	20		340		FE	I	2481.142	2480.393	1		378	
MN	I	2479.552	2478.803	2		148		AS	II	2481.162	2480.413	1		425	
AS	II	2479.597	2478.848	5		425		AR	II	2481.216	2480.467	30		506	
V	I	2479.72	2478.97	5	59.	1000		C	III	2481.251	2480.502	70	29.	34	Q
MN	II	2479.735	2478.985	20		328		BE	I	2481.3	2480.6			862	
V	II	2479.792	2479.043	200	71.	478		V	I	2481.355	2480.606	30	59.	1000	
CO	II	2479.797	2479.048	30		825		MN	II	2481.45	2480.70	10		328	
MN	II	2479.80	2479.05	18		328		ZN	III	2481.47	2480.72	10		162	
AR	II	2479.8052	2479.0565	100		867		O	III	2481.48	2480.73	4		168	
CR	I	2479.89	2479.14	15	32.	341		V	IV	2481.488	2480.739	30		829	
MN	II	2479.953	2479.204	2		328		P	II	2481.50	2480.75	1	5.	496	
FE	II	2479.972	2479.225	5	358.	488		AR	III	2481.607	2480.858	60		506	
FE	II	2480.008	2479.259	10		896		C	III	2481.610	2480.861	70	29.	34	
FE	II	2480.023	2479.276	1	208.	488		FE	I	2481.700	2480.951	10		896	M
MN	II	2480.034	2479.284	20		328		CU	III	2481.706	2480.957	5		724	
CR	III	2480.054	2479.307	10		893		MN	II	2481.712	2480.963	50		328	
CO	II	2480.06	2479.31	4		825		FE	II	2481.797	2481.048	15	243.	896	H
MN	II	2480.103	2479.354	20		328		CO	I	2481.84	2481.09	0		603	
FE	II	2480.132	2479.385	30	382.	488		CR	II	2481.84	2481.09	4	145.	340	
FE	I	2480.2289	2479.4801	110	65.	896		V	I	2481.86	2481.11	10	97.	1000	
NI	I	2480.24	2479.49	10		602		CU	III	2481.945	2481.196	15		724	
V	II	2480.267	2479.518	180	71.	478		CR	I	2481.98	2481.23	10	32.	341	
CU	I	2480.313	2479.594	1		672		MN	II	2481.99	2481.24	8		328	
CR	II	2480.32	2479.57	20		340		V	I	2482.03	2481.28	3		1000	
CU	III	2480.378	2479.629	2		724		BE	I	2482.068	2481.319	25		330	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	I	2482.180	2481.431	1		148		V	I	2483.614	2482.864	2		1000	
AR	II	2482.2239	2481.4746	90		867		FE	II	2483.615	2482.866	15	400.	896	
TI	II	2482.24	2481.49	10	10.	488		MN	II	2483.69	2482.94	50		328	
SI	III	2482.257	2481.508	15	89.	768		FE	I	2483.771	2483.021	15		896	M
CR	III	2482.302	2481.554	60		893		V	II	2483.814	2483.064	120	71.	478	
FE	II	2482.324	2481.576	20	112.	488		CR	III	2483.821	2483.073	700	43.	893	
AL	V	2482.34	2481.60	5		873		SI	III	2483.946	2483.196	60	89.	768	
CR	I	2482.40	2481.65	2	32.	341		AR	II	2483.975	2483.225	20		506	
CO	III	2482.42	2481.67	5		673		O	III	2483.99	2483.24	1		168	
MN	II	2482.458	2481.708	20		328		CR	II	2484.00	2483.25	4		340	
CL	III	2482.52	2481.77	200	13.	38		FE	I	2484.0210	2483.2713	1000	9.	896	
AS	II	2482.530	2481.781	1		425		NI	I	2484.04	2483.29	50		602	
MN	II	2482.57	2481.82	10		328		FE	I	2484.119	2483.369	15		896	M
CR	I	2482.75	2482.03	3		341		MN	II	2484.131	2483.381	40		328	
MN	II	2482.79	2482.04	8		328		FE	I	2484.2829	2483.5332	170	62.	896	
P	II	2482.790	2482.041	40	5.	496		MN	II	2484.291	2483.541	0		328	
V	I	2482.865	2482.115	20	59.	1000		CO	I	2484.363	2483.613	12	57.	603	
FE	II	2482.866	2482.117	80	161.	896	H	V	I	2484.386	2483.636	7		1000	
AR	II	2482.8999	2482.1504	90	18.	867		FE	I	2484.413	2483.663	10		896	M
F	III	2482.910	2482.160	4		537		CR	II	2484.42	2483.67	25	75.	340	
MN	II	2482.92	2482.17	50		328		FE	II	2484.471	2483.721	15	331.	896	H
CR	I	2483.00	2482.25	3		341		CR	II	2484.49	2483.74	40	310.	340	
NI	II	2483.003	2482.254	20		835		MN	I	2484.493	2483.743	8		148	
V	II	2483.057	2482.307	150	39.	478		NI	III	2484.52	2483.77	5		661	
FE	II	2483.075	2482.325	25	358	896		CU	II	2484.534	2483.785	1		612	
CL	II	2483.077	2482.327	2		613		FE	I	2484.536	2483.786	20		896	M
CU	III	2483.107	2482.357	600	23.	724		CR	II	2484.54	2483.79	40	75.	340	
MN	II	2483.16	2482.41	2		328		NI	I	2484.777	2484.028	25	50.	488	
CR	II	2483.23	2482.48	10	92.	340		F	IV	2484.81	2484.06	4		173	
O	III	2483.35	2482.60	1		168		ZN	III	2484.81	2484.06	15		162	
MN	II	2483.353	2482.604	3		328		AR	III	2484.86	2484.11	60	8.	488	
CR	I	2483.37	2482.62	1		341		FE	I	2484.9352	2484.1853	320	9.	896	
CO	II	2483.39	2482.64	1		825		P	II	2484.943	2484.193	100	5.	496	
FE	II	2483.406	2482.657	100	207.	896	H	MN	II	2484.95	2484.20	3		328	
NI	II	2483.429	2482.680	15		835		NI	II	2484.954	2484.204	140	61.	835	
V	I	2483.461	2482.711	15	81.	1000		FE	II	2484.991	2484.241	60	243.	896	H
FE	I	2483.502	2482.752	20		896	M	CL	III	2485.02	2484.27	400	13.	38	
CU	III	2483.532	2482.782	10		724		CO	II	2485.06	2484.31	10		825	
SI	IV	2483.566	2482.816	40	29.	767		ZN	III	2485.11	2484.36	30		162	
N	III	2483.60	2482.85	1	26.1	521		F	III	2485.115	2484.365	700		537	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CO	II	2485.12	2484.37	1		825		P	II	2486.54	2485.79	7		496	
NI	II	2485.131	2484.381	10		835		CU	II	2486.5426	2485.7924	100	92.	612	
FE	II	2485.191	2484.441	30	400.	896		CR	I	2486.58	2485.83	4		341	
MN	II	2485.24	2484.49	5		328		SI	V	2486.58	2485.83	100		941	
CU	II	2485.259	2484.509	1		612		MN	I	2486.592	2485.842	5		148	
NI	II	2485.276	2484.526	2		835		NE	IV	2486.6	2485.9	65		885	M
ZN	III	2485.28	2484.53	100		162		CO	I	2486.702	2485.952	1		603	
FE	I	2485.280	2484.530	1		378		NI	II	2486.710	2485.960	30		835	
N	III	2485.29	2484.54	40	26.1	521		FE	I	2486.7402	2485.9899	50	59.	896	
MN	II	2485.295	2484.545	5		320		MN	III	2486.78	2486.03	2		301	
FE	II	2485.302	2484.553	5	243.	489		NI	V	2486.8	2486.1			922	F P
FE	II	2485.325	2484.576	20	331.	488		MN	II	2486.908	2486.158	100		328	
FE	II	2485.457	2484.707	20		896	M	ZN	III	2486.91	2486.16	100		162	
MN	II	2485.486	2484.745	10		328		CR	II	2487.04	2486.29	30	92.	340	
MN	II	2485.555	2484.808	15		328		FE	II	2487.092	2486.343	220	208.	488	H
FE	III	2485.570	2484.820	10		188		FE	I	2487.1237	2486.3733	280	8.	896	
CR	I	2485.61	2484.86	4		341		N	III	2487.18	2486.43	25	26.1	521	
CO	II	2485.62	2484.87	7		825		CO	II	2487.183	2486.433	40	15.	825	
ZN	III	2485.78	2485.03	5		162		CU	III	2487.213	2486.463	450		724	
CR	I	2485.79	2485.04	1		341		CR	II	2487.41	2486.66	20	219.	340	
CL	III	2485.8	2485.1	300		43		CO	II	2487.44	2486.69	15		825	
MN	II	2485.803	2485.052	60		328		FE	I	2487.4419	2486.6914	100	62.	896	
FE	II	2485.825	2485.076	1	34.	488	H	CL	II	2487.491	2486.740	4		613	
MN	I	2485.864	2485.114	10		148		CU	III	2487.492	2486.741	3		724	
FE	I	2485.889	2485.139	15		896	M	F	III	2487.572	2486.822	12		537	
FE	I	2486.014	2485.264	10		896	M	CR	II	2487.61	2486.86	1	234.	340	
CU	III	2486.017	2485.267	3		724		MN	II	2487.618	2486.868	8		328	
O	III	2486.02	2485.27	0		168	M	ZN	III	2487.62	2486.87	200		162	
MN	II	2486.093	2485.343	10		328		AR	II	2487.656	2486.906	30		506	
CU	III	2486.108	2485.358	15		724		CL	III	2487.66	2486.91	500	21.	38	
CO	II	2486.110	2485.360	30	14.	825		CO	II	2487.69	2486.94	1		825	
SI	IV	2486.128	2485.378	10	29.	767		CR	I	2487.72	2486.97	2		341	
CR	II	2486.16	2485.41	15	309.	340		MN	II	2487.741	2486.991	60		328	
MN	II	2486.16	2485.41	10		328		CR	II	2487.78	2487.03	12	310.	340	
CR	I	2486.23	2485.48	2		341		CR	III	2487.795	2487.046	350		893	
V	II	2486.241	2485.490	3		478		FE	I	2487.8165	2487.0659	100	62.	896	
FE	II	2486.244	2485.495	0	382.	488		MN	II	2487.840	2487.089	20		328	
SI	III	2486.387	2485.623	0	89.	768	G	CO	II	2487.89	2487.14	20		825	
FE	III	2486.491	2485.741	25		188		FE	III	2487.942	2487.191	40		188	
F	IV	2486.54	2485.79	1		173		CR	I	2487.99	2487.24	2		341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	II	2488.106	2487.356	50	385.	488		NI	II	2489.832	2489.081	1		835	
FE	I	2488.1203	2487.3696	110	10.	896		V	I	2489.88	2489.13	4	59.	1000	
CO	II	2488.158	2487.407	25		825		MN	II	2489.957	2489.206	10		328	
V	I	2488.278	2487.528	10	21.	1000		CO	I	2490.000	2489.249	4	7.	603	
CO	II	2488.40	2487.65	2		825		CR	II	2490.03	2489.28	50	92.	340	
AS	II	2488.418	2487.667	15		425		CL	II	2490.155	2489.404	6		613	
CU	III	2488.472	2487.721	35		724		CU	III	2490.200	2489.449	25		724	
CO	II	2488.629	2487.878	M		825		CR	II	2490.21	2489.46	15		340	
FE	III	2488.672	2487.922	25		188		CR	I	2490.23	2489.48	8	32.	341	
MN	II	2488.87	2488.12	5		328		FE	II	2490.234	2489.482	80	161.	896	H
N	II	2488.871	2488.120	20	20.	200		NI	I	2490.257	2489.507	5	27.	488	
CO	II	2488.88	2488.13	10		825		CO	I	2490.258	2489.507	1		603	
FE	I	2488.8934	2488.1426	620.	9.	896		FE	I	2490.268	2489.517	20		896	M
NI	I	2488.899	2488.149	30		488	N	S	III	2490.34	2489.59	250	17.	323	
MN	II	2488.91	2488.16	40		328		CO	II	2490.349	2489.598	M		825	
V	I	2488.954	2488.203	5	22.	1000		CO	I	2490.37	2489.62	3		603	
MN	II	2488.96	2488.21	10		328		CU	II	2490.4039	2489.6527	20		612	
CU	III	2488.982	2488.231	3		724		CR	II	2490.42	2489.67	20		340	
O	III	2489.0	2488.3	0		168		NI	III	2490.42	2489.67	2	22.	661	
GE	IV	2489.00	2488.25	30		406		FE	I	2490.5015	2489.7503	320	9.	896	
CR	III	2489.01	2488.26	60	66.	490		FE	II	2490.580	2489.829	50	207.	896	H
CR	II	2489.05	2488.30	12	93.	340		FE	I	2490.6644	2489.9132	50		896	
FE	II	2489.085	2488.335	20		488	N	CO	I	2490.77	2490.02	0		603	
F	III	2489.111	2488.360	4		537		CR	II	2490.82	2490.07	20	219.	340	
MN	II	2489.17	2488.42	10		328		FE	I	2490.875	2490.124	15		896	M
CO	II	2489.181	2488.432	M		825		AS	II	2490.924	2490.183	150		425	
CO	I	2489.212	2488.461	4	7.	603		MN	II	2490.978	2490.227	15		328	
MN	II	2489.227	2488.476	50		328		N	II	2491.032	2490.281	70	18.0	200	
BR	II	2489.292	2488.542	350		606		CL	III	2491.1	2490.3	500		43	
V	II	2489.367	2488.616	6	22.	478		CO	II	2491.140	2490.389	30		825	
CR	I	2489.37	2488.62	1		341		AS	II	2491.246	2490.495	170		425	
V	I	2489.488	2488.737	4	59.	1000		MN	II	2491.259	2490.508	20		328	
N	II	2489.497	2488.746	40	20.	200		MG	III	2491.29	2490.54	160		2	
CR	I	2489.56	2488.81	2		341		FE	I	2491.3955	2490.6441	550	9.	896	
FE	I	2489.6961	2488.9450	100	164.	896		NI	I	2491.440	2490.689	20		488	N
CR	I	2489.71	2488.96	2		341		FE	II	2491.457	2490.706	100	331.	896	
MN	III	2489.726	2488.975	10		301		NA	I	2491.484	2490.733		6.	488	
FE	I	2489.761	2489.009	20		896	M	NI	V	2491.5	2490.7			922	F P
O	III	2489.8	2489.0	F		175		CR	II	2491.50	2490.75	25		340	
FE	II	2489.825	2489.074	10		896		FE	II	2491.610	2490.858	60	179.	896	H

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
C	II	2491.62	2490.87	10	58.	287		CR	I	2493.31	2492.57	30	31.	341	
MN	II	2491.661	2490.910	70		328		MN	II	2493.34	2492.58	0		328	
CU	III	2491.724	2490.972	3		724		CR	II	2493.37	2492.62	40	234.	340	
AR	II	2491.7861	2491.0346	90		867		FE	I	2493.3824	2492.6305	30	63.	896	
MN	II	2491.89	2491.14	10		328		CL	II	2493.40	2492.65	4		345	
BR	IV	2491.90	2491.14	250		574		FE	I	2493.432	2492.680	15	63.	896	
CO	I	2491.90	2491.15	1		603		MN	II	2493.468	2492.716	40		328	
FE	I	2491.9062	2491.1547	450	9.	896		FE	I	2493.574	2492.822	1	59.	378	
CO	II	2491.91	2491.16	15		825		CL	II	2493.59	2492.84	6		345	
V	III	2491.91	2491.16	30		325		CR	II	2493.61	2492.86	30	234.	340	
NI	I	2491.935	2491.184	20		488	N	FE	I	2493.641	2492.890	10		896	M
FE	I	2491.945	2491.193	30		896	M	AS	I	2493.66	2492.91	50	5.	480	
ZN	III	2491.95	2491.20	1000		162		CR	II	2493.83	2493.08	15		340	
N	II	2491.96	2491.21	40	34.	200		NA	II	2493.903	2493.152	60		693	
HE	I	2492.	2491.	3		126		N	II	2493.91	2493.16	20	20.	200	
MN	II	2492.074	2491.325	12		328		CO	II	2493.93	2493.18	1		825	
CR	I	2492.10	2491.35	20	31.	341		FE	II	2493.936	2493.184	100	207.	896	H
C	II	2492.12	2491.37	10	58.	287		FE	II	2493.936	2493.184	100	161.	896	H
FE	II	2492.148	2491.396	100	207.	896	H	CO	II	2493.98	2493.23	1		825	
MN	I	2492.165	2491.414	2		148		FE	II	2494.014	2493.262	220	161.	896	H
N	II	2492.21	2491.46	40	34.	200		CR	II	2494.03	2493.28	25	93.	340	
FE	I	2492.218	2491.466	40		896	M	O	IV	2494.19	2493.44	300		86	
MN	II	2492.397	2491.645	0		328		SE	III	2494.20	2493.45	50		587	
FE	I	2492.425	2491.673	20		896	M	CA	III	2494.269	2493.517	160	9.	64	
NI	II	2492.447	2491.695	1		835		CU	III	2494.304	2493.552	25		724	
CR	III	2492.559	2491.808	1	66.	893		V	II	2494.328	2493.576	15	5.	478	
V	I	2492.567	2491.815	2		1000		CO	II	2494.33	2493.58	4		825	
FE	I	2492.734	2491.982	30	163.	896		CR	I	2494.35	2493.60	8		341	
AR	II	2492.765	2492.013	30		506		CR	II	2494.35	2493.60	5		340	
ZN	III	2492.80	2492.05	500		162		V	III	2494.41	2493.65	20		325	
MN	II	2492.872	2492.120	15		328		NI	II	2494.418	2493.666	1		835	
CU	I	2492.898	2492.146	450	1.	672		MN	II	2494.469	2493.716	10		328	
O	III	2492.91	2492.16	F		175	P	CR	I	2494.50	2493.75	2		341	
FE	I	2492.980	2492.229	30	164.	896		FE	I	2494.503	2493.751	15		896	M
FE	II	2493.095	2492.344	25	243.	896	H	O	IV	2494.52	2493.77	300		86	
FE	I	2493.129	2492.377	30		896	M	FE	II	2494.628	2493.876	20	400.	896	
MN	II	2493.156	2492.404	10		328		CR	I	2494.64	2493.89	4		341	
NI	III	2493.28	2492.53	1		661		CO	I	2494.682	2493.930	30		603	
F	III	2493.303	2492.551	50		537		N	II	2494.692	2493.940	40	20.	200	
SE	I	2493.31	2492.56	50		588		O	IV	2494.74	2494.00	F		86	H

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2494.7526	2494.0005	60	62.	896		CR	I	2496.43	2495.68	3		341	
MN	II	2494.80	2494.04	10		328		MN	II	2496.49	2495.73	30		328	
FE	II	2494.863	2494.111	20	161.	488	H	V	I	2496.540	2495.787	20	22.	1000	
AR	II	2494.866	2494.114	40		506		MN	II	2496.62	2495.87	20		328	
CU	III	2494.900	2494.148	3		724		FE	I	2496.623	2495.871	100	57.	896	
CU	III	2494.945	2494.193	2		724		NI	II	2496.653	2495.900	50		835	
K	V	2495.0	2494.2			726	F	AR	II	2496.6772	2495.9245	20		867	
SE	III	2495.00	2494.25	150		587		CR	III	2496.698	2495.946	1		893	
FE	I	2495.0037	2494.2515	50	57.	896		CL	II	2496.750	2495.998	140	10.	613	
CR	II	2495.01	2494.26	10		340		MN	III	2496.79	2496.04	15		301	
V	IV	2495.103	2494.351	20		829		MN	I	2496.801	2496.048	7		148	
MN	I	2495.143	2494.391	20	16.	148		P	II	2496.820	2496.067	40	5.	496	
FE	I	2495.2617	2494.5094	10		896		CU	III	2496.83	2496.078	260		724	
MN	II	2495.291	2494.538	20		328		ZN	III	2496.93	2496.18	100		162	
BE	I	2495.295	2494.543	60	3.	333		AS	II	2496.992	2496.240	1		425	
V	II	2495.314	2494.562	3		478		S	III	2497.00	2496.24	300	17.	323	
BE	I	2495.335	2494.583	100	3.	333		CR	I	2497.05	2496.30	35	31.	341	
MN	I	2495.337	2494.585	5		148		FE	I	2497.089	2496.337	10		896	M
N	II	2495.46	2494.71	40	34.	200		FE	I	2497.149	2496.396	15		896	M
V	II	2495.473	2494.721	4		478		MN	I	2497.168	2496.415	3		148	
BE	I	2495.480	2494.728	160	3.	333		CO	II	2497.19	2496.44	30		825	
CO	I	2495.482	2494.730	9		603		CR	II	2497.19	2496.44	10	145.	340	
NI	III	2495.49	2494.74	1	22.	661		CO	I	2497.20	2496.45	1		603	
FE	I	2495.533	2494.781	6		896		F	II	2497.250	2496.497	10		538	
FE	II	2495.645	2494.893	20	382.	488		N	II	2497.27	2496.52		34.	521	P
CU	I	2495.65	2494.89	10	33.	672		FE	I	2497.2861	2496.5333	240	59.	896	
CU	II	2495.6675	2494.9151	2		612		MN	II	2497.310	2496.557	2		328	
N	II	2495.67	2494.92	1	34.	200		CR	II	2497.35	2496.60	15		340	
CR	I	2495.83	2495.08	20	31.	341		FE	III	2497.449	2496.696	25		188	
CR	II	2495.85	2495.10	7		340		CO	I	2497.466	2496.713	12	57.	603	
CR	II	2495.95	2495.20	7		340		B	I	2497.526	2496.773	1000	1.	274	
FE	II	2495.985	2495.233	1	393.	488		FE	I	2497.544	2496.792	40		896	M
BR	II	2496.003	2495.251	350		606		CR	II	2497.56	2496.81	40	336.	340	
ZN	III	2496.14	2495.39	20		162		NI	II	2497.560	2496.807	1		835	
AS	II	2496.160	2495.407	1		425		N	II	2497.58	2496.83	110	20.	200	
AR	II	2496.168	2495.415	5		506		MN	II	2497.658	2496.905	40		328	
AL	IV	2496.22	2495.47	80		888		CU	III	2497.715	2496.962	2		724	
MN	II	2496.23	2495.48	5		328		N	II	2497.73	2496.97	70	34.	200	
CO	I	2496.304	2495.551	10	56.	603		FE	I	2497.744	2496.991	20	164.	896	
CU	III	2496.315	2495.563	2		724		V	II	2497.755	2497.002	4	51.	478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
NA	III	2497.775	2497.022	750		516		AS	II	2498.939	2498.186	25		425	
V	IV	2497.802	2497.049	10		829		FE	I	2498.957	2498.203	8		896	M
NI	III	2497.81	2497.06	20		661		CR	II	2498.98	2498.23	2		340	
MN	I	2497.837	2497.084	4		148		V	I	2498.985	2498.232	20	20.	1000	
MN	II	2497.84	2497.08	15		328		ZN	III	2499.08	2498.33	10		162	
V	I	2497.852	2497.099	2		1000		FE	II	2499.096	2498.343	5		896	
ZN	III	2497.88	2497.13	50		162		AS	II	2499.226	2498.473	5		425	
AL	IV	2497.89	2497.14	200		888		CL	II	2499.283	2498.529	185	10.	613	
CR	I	2497.90	2497.15	5		341		CO	II	2499.38	2498.62	15		825	
AR	II	2497.9753	2497.2223	60		867		AS	II	2499.403	2498.650	25		425	
CO	II	2498.05	2497.30	4		825		FE	I	2499.451	2498.698	1		378	
FE	II	2498.053	2497.300	5	208.	488	H	CR	II	2499.55	2498.80	40	93.	340	
P	IV	2498.08	2497.33	100		597		FE	I	2499.572	2498.819	8		896	M
P	II	2498.125	2497.372	70	5.	496		CO	II	2499.576	2498.823	40		825	
CO	II	2498.237	2497.484	30		825		FE	II	2499.650	2498.897	450	161.	488	H
MN	I	2498.350	2497.597	4		148		FE	I	2499.6508	2498.8975	125	8.	896	
NI	II	2498.374	2497.621	1		835		TI	II	2499.69	2498.94	20	10.	488	
CU	III	2498.391	2497.638	290	23.	724		F	IV	2499.70	2498.95	1		173	
V	I	2498.408	2497.655	6	58.	1000		CU	II	2499.754	2499.001	2		612	
MN	II	2498.442	2497.685	20		328		MN	II	2499.764	2499.003	220	45.	328	
FE	II	2498.467	2497.714	5	242.	896	H	S	III	2499.83	2499.08	300	17.	323	
FE	II	2498.467	2497.714	5	128.	896	H	CO	II	2499.84	2499.09	15		825	
MN	I	2498.478	2497.725	15		148		V	I	2499.848	2499.094	15	21.	1000	
B	I	2498.484	2497.731	1000	1.	274		MN	II	2499.97	2499.21	30		328	
CA	III	2498.489	2497.736	315	9.	64		V	I	2499.997	2499.244	12	17.	1000	
F	II	2498.497	2497.744	25		538		O	IV	2500.03	2499.28	120		86	
CO	II	2498.50	2497.75	10		825		CL	II	2500.056	2499.303	5		613	
MN	II	2498.524	2497.771	2		328		CO	II	2500.08	2499.33	1		825	
NI	II	2498.558	2497.805	10	18.	835		CR	I	2500.09	2499.34	4		341	
ZN	III	2498.57	2497.82	50		162		CR	II	2500.10	2499.35	8		340	
FE	II	2498.572	2497.819	50	175.	896	H	MN	I	2500.183	2499.429	8		148	
FE	II	2498.572	2497.819	50	207.	896	H	AR	II	2500.2798	2499.5263	60		867	
FE	IX	2498.6	2497.8	10		940	FH	CR	I	2500.31	2499.56	4		341	
CR	II	2498.62	2497.87	10	298.	340		CR	II	2500.38	2499.63	5		340	
CU	III	2498.620	2497.867	10		724		CR	I	2500.41	2499.66	2	42.	341	
CR	I	2498.66	2497.91	10	30.	341		FE	I	2500.446	2499.693	1	104.	378	
GE	I	2498.7156	2497.9625	150	2.	7		MN	II	2500.48	2499.73	2		328	
V	I	2498.777	2498.024	10		1000		V	I	2500.531	2499.778	2		1000	
FE	II	2498.835	2498.082	8		896		N	II	2500.578	2499.825	20	34.	200	
CR	III	2498.884	2498.131	1		893		CR	I	2500.59	2499.84	15	31.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CU	II	2500.590	2499.837	1		612		CO	I	2502.011	2501.257	2		603	
V	I	2500.713	2499.959	8	17.	1000		FE	II	2502.066	2501.312	40		896	
MN	II	2500.819	2500.064	20		328		FE	II	2502.105	2501.351	1	400.	488	
CR	II	2500.82	2500.07	5	42.	340		AL	IV	2502.12	2501.37	5		889	
CR	III	2500.826	2500.073	90	66.	893		CR	II	2502.23	2501.48	25	73.	340	
V	II	2500.830	2500.076	4	5.	478		CU	II	2502.2476	2501.4937	2		612	
AS	II	2500.860	2500.107	1		425		CO	I	2502.262	2501.508	2		603	
GA	I	2500.940	2500.187	220	4.	488		FE	III	2502.280	2501.526	40		188	
CR	II	2500.96	2500.21	7	336.	340		AS	II	2502.315	2501.560	15		425	
CR	III	2501.03	2500.27	40	66.	490		V	I	2502.362	2501.608	60	19.	1000	
V	I	2501.136	2500.382	5	18.	1000		CU	III	2502.392	2501.638	10		724	
AR	II	2501.151	2500.397	50		506		CR	I	2502.40	2501.65	10	30.	341	
MN	II	2501.172	2500.418	20		328		FE	I	2502.406	2501.652	25.		896	M
CR	I	2501.19	2500.44	2		341		F	IV	2502.41	2501.66	1		173	
MN	II	2501.242	2500.487	20		328		FE	I	2502.4475	2501.6935	50	56.	896	
CO	I	2501.247	2500.494	10		603		FE	I	2502.479	2501.725	12		893	M
CR	III	2501.265	2500.511	1		893		O	IV	2502.56	2501.81	120		86	
GE	II	2501.290	2500.536	500	18.	676		AR	II	2502.5902	2501.8362	80		867	
CO	II	2501.36	2500.60	2		825		CR	I	2502.66	2501.91	4		341	
MN	II	2501.38	2500.62	20		328		SI	II	2502.724	2501.970	5	18.	678	
CR	I	2501.41	2500.66	12	30.	341		CU	III	2502.729	2501.975	1		724	
N	II	2501.426	2500.672	70	33.	200		ZN	II	2502.744	2501.990	1000	3.	154	
MN	I	2501.446	2500.692	4		148		ZN	IV	2502.755	2502.001	8		314	
CU	III	2501.450	2500.696	100		724		CO	II	2502.80	2502.04	4		825	
GA	I	2501.468	2500.714	40	4.	488		CR	II	2502.91	2502.16	12		340	
CR	I	2501.54	2500.79	4	30.	341		NI	II	2502.969	2502.215	5		835	
MN	I	2501.594	2500.840	2		148		CR	I	2503.02	2502.27	1		341	
CL	VII	2501.6	2500.8			92		CO	I	2503.038	2502.284	5		603	
NI	II	2501.627	2500.873	2		835		AS	II	2503.084	2502.329	3		425	
FE	II	2501.678	2500.924	40	357.	896	H	FE	II	2503.1471	2502.3930	60	207.	896	H
SI	II	2501.681	2500.928	3	18.	678		MN	II	2503.17	2502.41	30		328	
N	II	2501.685	2500.931		33.	521	P	FE	I	2503.2449	2502.4907	25		896	
GE	II	2501.709	2500.955	5	18.	676		MN	II	2503.275	2502.520	30		328	
P	II	2501.714	2500.960	40	5.	496		CO	II	2503.29	2502.54	2		825	
N	II	2501.808	2501.054		33.	521	P	CR	I	2503.30	2502.55	25	32.	341	
F	IV	2501.85	2501.10	4		173		MN	II	2503.44	2502.68	1		328	
NI	II	2501.859	2501.105	1		835		CR	I	2503.47	2502.72	2	32.	341	
NI	I	2501.882	2501.128	15		488	N	MN	III	2503.475	2502.721	3		301	
FE	I	2501.8861	2501.1323	320	7.	896		CL	II	2503.491	2502.737	230	10.	613	
CR	III	2501.927	2501.173	200	57.	893		NA	II	2503.59	2502.84	4		693	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	I	2503.64	2502.89	3	69.	341		N	II	2505.148	2504.399		33.	521	P
FE	III	2503.657	2502.903	25		188		NI	II	2505.179	2504.424	5		835	
CR	II	2503.71	2502.96	2		340		CO	I	2505.272	2504.518	4	55.	603	
V	II	2503.772	2503.018	180	21.	478		CO	II	2505.273	2504.518	50		825	
CU	III	2503.783	2503.029	75		724		TI	I	2505.274	2504.522	30		488	N
CU	III	2503.934	2503.180	5		724		ZN	III	2505.3	2504.5	5		162	
CO	I	2503.99	2503.24	1		603		CR	II	2505.30	2504.55	3	320.	340	
CO	II	2503.99	2503.24	20		825		K	II	2505.35	2504.60	40	5.	488	
NI	II	2504.010	2503.256	100		835		CU	III	2505.383	2504.629	140		724	
ZN	III	2504.03	2503.28	50		162		FE	I	2505.390	2504.635	1		378	
V	I	2504.054	2503.300	50	17.	1000		N	II	2505.405	2504.653		33.	521	P
FE	II	2504.0809	2503.3265	40	206.	896	H	V	III	2505.45	2504.69	2		325	
CU	III	2504.082	2503.327	2		724		O	III	2505.45	2504.70	0		1032	
CR	II	2504.16	2503.41	2	298.	340		AR	II	2505.493	2504.738	30		506	
MN	II	2504.213	2503.459	40		328		N	II	2505.528	2504.776		33.	521	P
FE	I	2504.2465	2503.4921	25	164.	896		MN	II	2505.606	2504.851	10		328	
NI	II	2504.264	2503.509	5		835		FE	II	2505.640	2504.885	0		645	
FE	II	2504.312	2503.560	110	161.	488	H	V	II	2505.69	2504.94	2		478	
F	IV	2504.32	2503.57	4		173		NE	IV	2505.7	2504.9	50		885	M
FE	II	2504.320	2503.566	20	175.	896	H	CR	I	2505.75	2505.00	10	69.	341	
CR	II	2504.37	2503.62	3	201.	340		FE	I	2505.766	2505.011	12	163.	896	
CU	III	2504.380	2503.625	75		724		CR	III	2505.819	2505.066	120	66.	893	
V	III	2504.43	2503.67	0		325		MN	II	2505.84	2505.08	0		328	
CO	II	2504.611	2503.857	10		825		SI	II	2505.846	2505.091	2	17.03	678	
CO	I	2504.615	2503.860	1		603		CO	I	2505.862	2505.107	3		603	
FE	II	2504.6287	2503.8742	60	285.	896	H	CO	II	2505.88	2505.13	30		825	
CR	II	2504.64	2503.89	4		340		FE	II	2505.970	2505.217	20	33.	488	H
AS	II	2504.665	2503.911	5		425		V	II	2505.991	2505.236	2		478	
V	I	2504.667	2503.912	2		1000		CR	I	2506.12	2505.37	4		341	
AR	II	2504.6892	2503.9347	70		867		FE	I	2506.1945	2505.4397	20		896	M
FE	I	2504.856	2504.101	1		378		CR	II	2506.20	2505.45	2		340	
ZN	III	2504.86	2504.11	30		162		TI	III	2506.23	2505.47	3		227	
NI	II	2504.930	2504.175	1		835		FE	I	2506.2398	2505.4849	40		896	
N	II	2504.943	2504.188	70	33.	200		F	III	2506.295	2505.540	12		537	
CL	III	2504.98	2504.23	500	13.	38		V	I	2506.295	2505.540	15	22.	1000	
V	II	2505.045	2504.290	7		478		CU	III	2506.364	2505.609	170		724	
CR	I	2505.06	2504.31	40	31.	341		FE	I	2506.408	2505.653	25		896	M
SI	II	2505.086	2504.331	2	17.03	678		CU	III	2506.517	2505.762	10		724	
MN	II	2505.126	2504.371	20		328		CO	II	2506.52	2505.77	15		825	
V	I	2505.137	2504.382	1		1000		NI	II	2506.598	2505.843	120	48.	835	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2506.61	2505.86	20	200.	340		BE	II	2508.184	2507.429	7		332	
CR	I	2506.75	2505.99	1		341		CU	III	2508.207	2507.452	140		724	
AS	II	2506.778	2506.023	0		425		CR	II	2508.33	2507.57	10	298.	340	
NI	II	2506.846	2506.091	100		835		AL	IV	2508.35	2507.60	3		888	
FE	II	2506.8484	2506.0934	80	207.	896	H	MN	II	2508.353	2507.598	170	45.	328	
CR	II	2506.87	2506.11	8	41.	340		FE	II	2508.360	2507.607	20	363.	488	
CO	II	2506.88	2506.12	4		825		CO	I	2508.433	2507.678	40	56.	603	
V	II	2506.970	2506.215	200	21.	478		FE	II	2508.443	2507.688	15	363.	896	
CU	II	2507.0282	2506.2732	150	92.	612		MN	II	2508.45	2507.70	20		328	
NA	II	2507.050	2506.297	10		693		D	IV	2508.48	2507.73	300		86	
CR	I	2507.09	2506.33	4	30.	341		FE	I	2508.494	2507.739	15		896	M
CR	III	2507.167	2506.414	400		893		AL	IV	2508.51	2507.76	300		888	
FE	II	2507.189	2506.434	12	128.	896	H	MN	I	2508.511	2507.756	2		148	
CR	I	2507.21	2506.45	2		341		V	I	2508.532	2507.777	100	19.	1000	
CO	II	2507.215	2506.460	60	15.	825		MN	II	2508.568	2507.813	50		328	
MN	II	2507.225	2506.469	15		328		CU	III	2508.588	2507.832	5		724	
V	I	2507.237	2506.482	6	18.	1000		FE	I	2508.6553	2507.8999	220	59.	896	
CU	III	2507.282	2506.527	10		724		CO	II	2508.718	2507.963	60		825	
FE	I	2507.329	2506.574	15	163.	896		AL	IV	2508.76	2508.01	300		888	
ZN	II	2507.44	2506.69	10		154		S	II	2508.77	2508.01	300		285	
CU	III	2507.475	2506.720	120		724		CO	II	2508.79	2508.04	60		825	
CR	II	2507.52	2506.76	5	167.	340		CU	III	2508.808	2508.052	120		724	
FE	II	2507.5515	2506.7963	40	175.	896		AS	II	2508.818	2508.063	25		425	
CR	I	2507.58	2506.82	25	31.	341		ZN	III	2508.84	2508.09	50		162	
CO	I	2507.628	2506.873	10	57.	603		MN	II	2508.858	2508.102	10		328	
MN	II	2507.65	2506.90	5		328		CR	I	2508.87	2508.11	18	30.	341	
SI	I	2507.6525	2506.8973	425	1.	608		S	III	2508.90	2508.15	350	17.	323	
V	I	2507.657	2506.902	150	17.	1000		CO	II	2509.01	2508.25	15		825	
FE	I	2507.663	2506.908	25		896	M	V	II	2509.02	2508.26	2		478	
CR	II	2507.68	2506.93	4	41.	340		F	IV	2509.06	2508.31	1		173	
AS	II	2507.682	2506.927	3		425		FE	II	2509.0966	2508.3411	30		896	H N
LI	II	2507.695	2506.940	1		307		CU	III	2509.243	2508.488	340		724	
V	IV	2507.724	2506.969	10		829		P	II	2509.28	2508.53	0		431	
FE	II	2507.781	2507.026	8	207.	896		AR	II	2509.304	2508.548	10		506	
MN	II	2507.782	2507.027	20		328		AS	II	2509.357	2508.601	5		425	
MN	III	2507.87	2507.12	3		301		CU	III	2509.367	2508.612	75		724	
CO	I	2507.924	2507.169	2		603		CO	I	2509.486	2508.730	1		603	
FE	III	2507.999	2507.244	10		188		FE	I	2509.5086	2508.7530	50	63.	896	
CR	I	2508.08	2507.32	12	69.	341		CU	III	2509.531	2508.775	5		724	
AR	II	2508.088	2507.333	30		506		MN	II	2509.531	2508.775	50	45.	328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLIET	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLIET	REFERENCE	NOTES
LI	II	2509.541	2508.785	I		307		NI	II	2511.206	2510.450	8		835	
V	I	2509.578	2508.822	5	16.	1000		MN	II	2511.216	2510.460	30		328	
CU	III	2509.604	2508.848	50		724		CR	I	2511.25	2510.49	8	29.	341	
V	II	2509.609	2508.854	4	51.	478		MN	II	2511.250	2510.494	5		328	
AR	III	2509.66	2508.91	30	8.	488		O	IV	2511.30	2510.60	25		86	
FE	I	2509.704	2508.948	1	59.	378		FE	II	2511.319	2510.565	5	112.	488	
CU	III	2509.721	2508.965	15		724		AR	II	2511.3824	2510.6263	30		867	
CR	I	2509.73	2508.97	15	30.	341		CR	I	2511.39	2510.69	6	29.	341	
MN	II	2509.740	2508.984	30		328		MN	II	2511.411	2510.655	140		328	
ZN	III	2509.78	2509.03	8		162		CU	III	2511.558	2510.802	2		724	
CR	II	2509.86	2509.10	12		340		FE	I	2511.5909	2510.8348	320	7.	896	
C	II	2509.877	2509.121	250	14.	287		NI	II	2511.627	2510.871	220	18.	835	H
FE	II	2509.873	2509.123	15	242.	896	H	TI	II	2511.65	2510.90	2	4.	488	
O	IV	2509.95	2509.19	350		86		CL	III	2511.67	2510.92	400	13.	33	
CO	I	2509.990	2509.234	2		603		BE	IV	2511.744	2510.988			309	
MN	II	2509.995	2509.239	5		328		CR	I	2511.77	2511.01	3		341	
MG	VII	2510.	2509.			843		NI	II	2511.772	2511.016	5		835	
N	II	2510.064	2509.310		33.	521	FH P	CO	II	2511.774	2511.018	20		825	
MN	II	2510.094	2509.338	5		328		CO	I	2511.775	2511.019	10	56.	603	
MN	II	2510.13	2509.37	2		328		F	III	2511.856	2511.100	110		537	
FE	I	2510.146	2509.390	1		378		CO	II	2511.915	2511.159	15		825	
NI	III	2510.22	2509.47	10	22.	661		V	I	2511.938	2511.182	20		1000	
CU	III	2510.271	2509.512	15		724		HE	II	2511.961	2511.205			309	
N	II	2510.272	2509.518		33.	521	P	CR	II	2511.98	2511.22	20	91.	340	
V	IV	2510.362	2509.606	5		829		NI	II	2511.991	2511.235	10		835	
MN	II	2510.373	2509.618	60		328		CU	III	2512.053	2511.297	170		724	
CU	III	2510.443	2509.687	3		724		CL	II	2512.08	2511.33	6		345	
ZN	III	2510.53	2509.78	40		162		MN	II	2512.096	2511.340	15		328	
FE	II	2510.621	2509.866	12	363.	896		MN	I	2512.108	2511.351	2		148	
N	II	2510.656	2509.902		33.	521	P	V	IV	2512.134	2511.377	1		829	
NI	V	2510.7	2509.9			922	F P	FE	II	2512.138	2511.382	12	33.	896	H
CO	II	2510.85	2510.09	10		825		AS	II	2512.144	2511.388	2		425	
CO	I	2510.86	2510.10	0		603		FE	III	2512.174	2511.418	90	93.	188	
FE	II	2510.875	2510.121	5	400.	488		CO	II	2512.20	2511.44	20		825	
V	I	2510.94	2510.18	1		1000		MN	I	2512.294	2511.538	4		148	
V	I	2510.998	2510.242	8	19.	1000		V	I	2512.398	2511.642	80	17.	1000	
CR	II	2511.00	2510.24	20	200.	340		CO	II	2512.42	2511.67	1		825	
NA	III	2511.020	2510.266	510		516		S	II	2512.47	2511.72	0		265	
CR	I	2511.13	2510.37	2	31.	341		CO	II	2512.49	2511.74	1		825	
NE	IV	2511.2	2510.4	45		885	M	SI	V	2512.49	2511.74	20		941	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
C	II	2512.490	2511.734	60	14.	287		CU	III	2513.780	2513.023	50		724	
FE	II	2512.5169	2511.7606	110	161.	896	H	MN	I	2513.842	2513.086	1		148	
CO	II	2512.61	2511.86	1		825		CO	I	2513.875	2513.119	4		603	
MN	II	2512.612	2511.855	15		328		CO	II	2513.88	2513.12	M		825	
MN	II	2512.661	2511.905	15		328		FE	II	2513.910	2513.155	20	363.	488	
FE	II	2512.665	2511.910	20	175.	488		AL	I	2514.062	2513.305	40		198	
V	I	2512.697	2511.940	100	17.	1000		V	II	2514.079	2513.322	1		478	
CR	I	2512.72	2511.96	15	69.	341		FE	I	2514.083	2513.328	3		605	N
NI	II	2512.721	2511.965	2		835		CL	II	2514.103	2513.346	5		613	
CO	II	2512.81	2512.05	20		825		FE	II	2514.127	2513.372	5	207.	488	
C	II	2512.821	2512.065	350	14.	287		SE	III	2514.13	2513.37	10		587	
NA	I	2512.883	2512.128		5.	488		AS	II	2514.249	2513.492	5		425	
CU	III	2512.894	2512.137	15		724		FE	I	2514.253	2513.498	15		896	M
AS	IV	2512.94	2512.18	350		584		GA	II	2514.31	2513.55	120		652	
NA	I	2512.965	2512.210		5.	488		CR	I	2514.38	2513.62	15	30.	341	
CR	II	2512.98	2512.22	8	167.	340		NE	II	2514.400	2513.643	60		563	
V	IV	2512.998	2512.242	0		829		CR	II	2514.42	2513.66	50	308.	340	
AR	II	2513.0141	2512.2576	60		867		CU	III	2514.505	2513.748	8		724	
NI	III	2513.02	2512.26	1		661		FE	I	2514.542	2513.785	20		896	M
FE	I	2513.0319	2512.2754	80		896		FE	I	2514.6055	2513.8487	8	164.	896	
FE	I	2513.1213	2512.3649	200	8.	896		CL	II	2514.77	2514.01	6		345	
CR	II	2513.14	2512.38	10	199.	340		CO	II	2514.87	2514.11	1		825	
CO	II	2513.17	2512.41	M		825		GA	II	2514.91	2514.15	50		652	
CL	II	2513.173	2512.416	5		613		MN	II	2514.957	2514.200	100		328	
O	III	2513.192	2512.437	1		1032		FE	I	2515.0363	2514.2794	30		896	M
CR	III	2513.263	2512.508	350	57.	893		CU	II	2515.0492	2514.2923	2		612	
FE	II	2513.274	2512.521	15	343.	896	H	CO	II	2515.056	2514.299	M		825	
MN	II	2513.429	2512.673	8		328		AL	IV	2515.06	2514.30	200		888	
CO	II	2513.45	2512.69	1		825		FE	I	2515.0628	2514.3059	20		896	M
V	III	2513.47	2512.72	0		325		MN	I	2515.071	2514.314	40		148	
FE	II	2513.482	2512.727	0	129.	488		SI	I	2515.0730	2514.3161	375	1.	608	
CR	II	2513.56	2512.80	5		340		V	I	2515.079	2514.322	15		1000	
V	II	2513.568	2512.812	2		478		MN	II	2515.11	2514.35	0		328	
CU	III	2513.571	2512.815	2		724		FE	II	2515.1400	2514.3831	50	285.	896	H
SE	III	2513.60	2512.85	30		587		V	I	2515.17	2514.41	10	80.	1000	
CU	III	2513.653	2512.896	35		724		K	V	2515.2	2514.4			726	F
CO	I	2513.657	2512.900	5	113.	603		MN	II	2515.260	2514.503	20		328	
FE	III	2513.658	2512.902	10	93.	188		FE	I	2515.277	2514.520	8		896	M
MN	II	2513.688	2512.932	10		328		FE	VII	2515.3	2514.5			1034	
MN	II	2513.74	2512.98	0		328		MN	II	2515.325	2514.567	30		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	I	2515.326	2514.569	15		896	M	CR	II	2516.65	2515.89	4	110.	340	
NI	II	2515.384	2514.627	140	61.	835		CL	II	2516.653	2515.896	10	.	613	
V	II	2515.390	2514.633	200	21.	478		CR	I	2516.66	2515.90	7	32.	341	
NI	V	2515.4	2514.6			922	F P	CR	III	2516.680	2515.924	250		893	
CU	III	2515.415	2514.658	25		724		FE	II	2516.681	2515.925	1	363.	488	
B	V	2515.42	2514.66			309		ZN	III	2516.69	2515.93	40		162	
CU	III	2515.457	2514.700	3		724		MN	II	2516.751	2515.994	1		328	
FE	I	2515.4661	2514.7091	20		896	M	TI	III	2516.810	2516.053	1000	7.	227	
CR	I	2515.49	2514.73	2		341		FE	I	2516.869	2516.112	50		896	M
CU	III	2515.510	2514.753	10		724		SI	I	2516.8700	2516.1125	500	1.	608	
CU	III	2515.663	2514.906	3		724		MN	II	2516.89	2516.13	40	45.	328	
FE	II	2515.667	2514.912	40	175.	488	H	AL	IV	2516.96	2516.20	80		888	
CO	III	2515.69	2514.93	2		673		O	III	2516.987	2516.231	0		1032	
MN	II	2515.707	2514.950	30	45.	328		FE	I	2517.0076	2516.2502	15	57.	896	
F	IV	2515.77	2515.01	10		173		F	IV	2517.03	2516.27	0		173	
ZN	III	2515.79	2515.03	50		162		CU	III	2517.089	2516.331	200		724	
CR	II	2515.82	2515.06	5	308.	340		NE	VII	2517.1	2516.3	109		885	M
CU	III	2515.820	2515.063	10		724		MN	II	2517.10	2516.34	2		328	
CO	I	2515.832	2515.075	1		603		CR	I	2517.18	2516.42	1	69.	341	
CU	II	2515.8397	2515.0826	4		612		FE	I	2517.3279	2516.5705	80	61.	896	
FE	II	2515.876	2515.119	12		896		CR	II	2517.33	2516.57	40		340	
V	I	2515.902	2515.145	30	18.	1000		MN	II	2517.357	2516.599	140	21.	328	
AR	II	2516.029	2515.272	30		506		CU	III	2517.493	2516.736	3		724	
MN	II	2516.066	2515.309	20		328		MN	II	2517.499	2516.742	170	45.	328	
NI	II	2516.128	2515.371	5		835		AR	II	2517.5462	2516.7887	130		867	
NA	II	2516.216	2515.461	10		693		CR	III	2517.565	2516.809	200	42.	893	
AL	IV	2516.24	2515.48	100		888		MN	X	2517.6	2516.8			726	F
CU	III	2516.249	2515.492	3		724		CU	III	2517.623	2516.866	200		724	
CU	III	2516.325	2515.568	5		724		MN	II	2517.632	2516.875	20		328	
F	IV	2516.33	2515.57	25		173		NI	II	2517.633	2516.875	15		835	
F	III	2516.333	2515.576	300		537		V	III	2517.65	2516.89	20		325	
AR	II	2516.3508	2515.5935	90		867		CR	I	2517.68	2516.92	20	30.	341	
V	I	2516.406	2515.649	6		1000		F	III	2517.818	2517.060	250		537	
V	II	2516.479	2515.722	9	21.	478		FE	II	2517.889	2517.131	50	147.	896	H
ZN	III	2516.53	2515.77	100		162		TI	I	2517.90	2517.14	10	8.	488	
ZN	I	2516.564	2515.807	2		830		V	I	2517.900	2517.142	80	19.	1000	
CU	III	2516.586	2515.829	5		724		FE	II	2517.967	2517.211	20	207.	488	H
AR	II	2516.590	2515.833	5		506		CU	III	2517.971	2517.214	3		724	
FE	I	2516.6115	2515.8543	0	104.	896		O	IV	2518.0	2517.2	300		86	
AL	IV	2516.63	2515.87	400		888		AL	IV	2518.05	2517.29	200		883	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	III	2518.079	2517.321	100		724		CR	I	2519.28	2518.52	4	28.	341	
CO	II	2518.11	2517.35	2		825		FE	I	2519.291	2518.533	8		896	M
CR	II	2518.12	2517.36	20	336.	340		MN	II	2519.34	2518.58	0		328	
MN	II	2518.14	2517.38	60	21.	328		MG	III	2519.39	2518.64	3		2	
CO	II	2518.169	2517.414	25		825		CR	I	2519.47	2518.71	12	30.	341	
TI	II	2518.204	2517.448	2	4.	488		CU	III	2519.535	2518.777	230		724	
NI	II	2518.227	2517.469	20		835		MN	II	2519.544	2518.786	30		328	
V	I	2518.257	2517.500	8	16.	1000		CO	II	2519.577	2518.820	M		825	
SI	IV	2518.264	2517.506	500	26.	767		FE	I	2519.584	2518.826	15		896	
MN	II	2518.268	2517.509	20		328		CR	II	2519.60	2518.84	30	308.	340	
CR	I	2518.33	2517.57	10	29.	341		CU	III	2519.604	2518.846	75		724	
MN	I	2518.337	2517.580	2		148		NE	II	2519.635	2518.877	5		563	
FE	I	2518.4132	2517.6615	170	59.	896		CU	II	2519.7068	2518.9488	15	103.	612	
MN	I	2518.434	2517.677	1		148		MN	II	2519.71	2518.95	1		328	
MN	II	2518.44	2517.67	20	21.	328		CO	I	2519.746	2518.988	3	113.	603	
CU	III	2518.444	2517.687	15		724		TI	I	2519.77	2519.01	40	8.	488	
CO	II	2518.53	2517.77	M		825		FE	II	2519.8052	2519.0460	60	168.	896	H
CO	I	2518.550	2517.792	6	56.	603		CR	II	2519.84	2519.08	25	91.	340	
CR	II	2518.62	2517.86	7		340		MN	II	2519.93	2519.17	15		328	
CO	I	2518.627	2517.869	10	57.	603		FE	I	2519.960	2519.201	15		896	M
CR	I	2518.63	2517.87	6	29.	341		SI	I	2519.9603	2519.2023	350	1.	608	
MN	II	2518.63	2517.87	20		328		AL	I	2519.980	2519.222	25		198	
AS	II	2518.632	2517.874	20		425		B	II	2520.015	2519.257	50		532	
MN	I	2518.717	2517.960	1		148		MN	II	2520.02	2519.26	10		328	
O	II	2518.73	2517.97	40	21.	488		TI	II	2520.07	2519.31	0		601	
V	II	2518.73	2517.97	2		478		MN	II	2520.070	2519.312	30		328	
CR	I	2518.75	2517.99	2	29.	341		FE	II	2520.161	2519.404	20	222.	488	
MN	II	2518.79	2518.03	15		328		CL	III	2520.21	2519.45	500	13.	38	
TI	II	2518.82	2518.06	2		601		CO	II	2520.23	2519.47	5		825	
FE	I	2518.8597	2518.1020	280	7.	896		CU	III	2520.246	2519.488	5		724	
NE	II	2518.864	2518.106	20		563		CR	I	2520.27	2519.51	50	31.	341	
CU	III	2518.870	2518.112	15		724		AL	I	2520.272	2519.514	3		198	
CL	II	2518.896	2518.139	17		613		MN	II	2520.31	2519.55	30		328	
MN	II	2518.94	2518.18	100		328		AS	II	2520.320	2519.562	2		425	
CR	III	2519.014	2518.257	300		893		CR	II	2520.37	2519.61	15	320.	340	
CR	II	2519.05	2518.29	100	308.	340		V	I	2520.380	2519.622	100	17.	1000	
NE	II	2519.074	2518.316	10		563		FE	I	2520.3874	2519.6292	125	59.	896	
MN	II	2519.075	2518.317	10		328		CR	III	2520.407	2519.650	200	57.	893	
CU	III	2519.082	2518.324	230		724		MN	II	2520.44	2519.68	15		328	
MN	II	2519.261	2518.503	0		328		NE	II	2520.484	2519.726	50		563	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NE	II	2520.510	2519.752	70	.	563		CU	III	2521.753	2520.995	170		724	
TI	II	2520.55	2519.79	0	4.	488		MN	II	2521.840	2521.081	25		328	
V	IV	2520.561	2519.803	20		829		FE	II	2521.8505	2521.0920	40	268.	896	H
CO	II	2520.576	2519.818	50	15.	825	H	NI	II	2521.976	2521.217	5		835	
CL	II	2520.608	2519.850	7	.	613		FE	II	2521.977	2521.218	8		896	
CU	III	2520.621	2519.863	0		724		S		2522.	2521.			107	N
CU	III	2520.675	2519.917	5		724		CO	II	2522.116	2521.357	0		825	
CO	II	2520.718	2519.960	200		825		CO	I	2522.122	2521.363	75	3.	603	
MN	II	2520.771	2520.011	10		328		V	II	2522.129	2521.370	4		478	
CL	II	2520.837	2520.079	13		613		FE	II	2522.242	2521.485	20		488	N
MN	II	2520.860	2520.102	80		328		CR	II	2522.26	2521.50	1		340	
CO	II	2520.87	2520.11	20		825		V	I	2522.270	2521.512	6		1000	
FE	III	2520.920	2520.162	60	93.	188		F	III	2522.343	2521.584	200		537	
N	II	2520.980	2520.222	110	19.	200		V	I	2522.373	2521.615	3		1000	
CR	I	2520.99	2520.23	6	31.	341		MN	II	2522.424	2521.665	140		328	
MN	II	2521.010	2520.252	60		328		CL	VII	2522.5	2521.7			92	
FE	II	2521.020	2520.262	8	363.	896		NI	V	2522.5	2521.7			922	F P
CR	II	2521.04	2520.28	5		34		BR	II	2522.508	2521.750	800		606	
V	I	2521.07	2520.31	10		1000		CR	II	2522.52	2521.76	5	200.	340	
NI	II	2521.109	2520.351	5	47.	835		FE	II	2522.5742	2521.8155	30	330.	896	H
CU	III	2521.121	2520.363	35		724		NI	II	2522.611	2521.853	10		835	
V	II	2521.166	2520.408	2		478		FE	I	2522.6770	2521.9183	40	58.	896	
ZN	III	2521.17	2520.41	10		162		MN	I	2522.744	2521.986	7	30.	148	
MN	II	2521.276	2520.518	100		328		ZN	III	2522.75	2521.99	25		162	
FE	II	2521.292	2520.535	1	343.	488		CR	II	2522.77	2522.01	4	9.	340	
NE	IV	2521.3	2520.5	41		885	M	V	I	2522.783	2522.024	1		1000	
TI	I	2521.300	2520.543	100	8.	488		ZN	III	2522.82	2522.06	100		162	
ZN	III	2521.33	2520.57	15		162		MN	I	2522.943	2522.185	2		148	
MN	II	2521.38	2520.62	50		328		FE	II	2522.956	2522.197	15	159.	896	H
CR	II	2521.41	2520.65	40	108.	340		N	II	2522.986	2522.227	220	19.	200	
FE	II	2521.426	2520.669	20	242.	488	H	CR	I	2522.99	2522.23	2		341	
AL	IV	2521.44	2520.68	10		888		NI	III	2522.991	2522.232	2		661	
FE	II	2521.506	2520.749	1	175.	488		MN	II	2523.02	2522.26	30		328	
N	II	2521.549	2520.791	160	19.	200		NI	II	2523.024	2522.266	1		835	
CR	II	2521.59	2520.83	20	336.	340		MN	I	2523.033	2522.274	4	30.	148	
FE	I	2521.627	2520.868	8		896	M	AL	IV	2523.04	2522.28	5		888	
CO	I	2521.667	2520.908	3		603		CU	III	2523.144	2522.385	340	29.	724	
SC	IV	2521.684	2520.927	285		720		V	II	2523.151	2522.392	6	21.	478	
MN	II	2521.716	2520.958	10		328		NI	II	2523.212	2522.453	75		835	
FE	I	2521.7298	2520.9713	25		896		N	II	2523.217	2522.458	70	19.	200	

SPECTRUM	VACUUM				MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM	AIR	INTENSITY	MULTIPLY	REFERENCE	NOTES
									WAVELENGTH	WAVELENGTH				
FE	I	2523.2386	2522.4798	50	57.	896		V	II	2524.712	2523.953	100	50.	478
AR	II	2523.2574	2522.4985	90		867		CU	III	2524.736	2523.977	15		724
MN	II	2523.258	2522.499	50		328		MN	II	2524.74	2523.98	30		328
FE	I	2523.270	2522.511	30		896	M	FE	I	2524.758	2523.998	20		896
V	II	2523.272	2522.513	20	50.	478		FE	I	2524.867	2524.108	20		896
N	VII	2523.3	2522.6			309		SI	I	2524.8671	2524.1079	425	1.	608
CR	II	2523.31	2522.55	20	320.	340		NI	I	2524.966	2524.208	25	28.	488
N	II	2523.38	2522.62		42.	521	P	NI	II	2524.972	2524.213	20		835
MN	II	2523.39	2522.63	20		328		CU	III	2525.003	2524.243	25		724
MN	II	2523.49	2522.73	25		328		MN	II	2525.02	2524.26	2		328
N	II	2523.52	2522.76		42.	521	P	FE	I	2525.0519	2524.2927	220	7.	896
F	III	2523.535	2522.776	30		537		CO	II	2525.089	2524.330	M		825
FE	I	2523.6083	2522.8494	620	7.	896		NI	III	2525.119	2524.358	15	32.	661
MN	II	2523.61	2522.85	1		328		C	IV	2525.17	2524.41	600	14.	35
FE	I	2523.651	2522.892	50		896	M	AL	III	2525.189	2524.401	D		826
CO	II	2523.708	2522.949	2		825		CO	II	2525.20	2524.44	4		825
CO	I	2523.76	2523.00	4		603		MN	I	2525.231	2524.472	10	30.	148
MN	II	2523.772	2523.013	100		328		N	II	2525.247	2524.488	70	19.	200
CU	III	2523.781	2523.022	260		724		AL	III	2525.253	2524.477	D		826
FE	I	2523.897	2523.137	40		896	M	MN	II	2525.27	2524.51	20		328
MN	II	2523.954	2523.194	80		328		CR	II	2525.31	2524.55	15		340
F	III	2523.96	2523.20	4		537		FE	I	2525.361	2524.602	12		896
CR	II	2524.00	2523.24	150	308.	340		CO	II	2525.383	2524.624	1	27.	825
CU	III	2524.013	2523.254	200		724		TI	II	2525.413	2524.655	8	4.	488
FE	I	2524.082	2523.323	12		896	M	MN	II	2525.473	2524.713	30		328
FE	I	2524.133	2523.374	15		896	M	B	IV	2525.5	2524.7	40		221
V	III	2524.16	2523.40	25	14.	791		MN	II	2525.547	2524.788	2		328
CR	I	2524.20	2523.44	2		341		NE	II	2525.629	2524.870	30		563
FE	II	2524.200	2523.441	15	363.	896		CU	III	2525.709	2524.950	100		724
NE	II	2524.226	2523.467	40		563		CO	II	2525.730	2524.971	50	15.	825
V	I	2524.264	2523.505	5		1000		BR	II	2525.758	2525.000	150		606
V	II	2524.37	2523.61	1		478		FE	I	2525.7833	2525.0239	100		896
CR	II	2524.38	2523.62	30	308.	340		MN	II	2525.84	2525.08	5		328
C	IV	2524.4	2523.7	100	14.01	35	F	FE	II	2525.868	2525.109	15	330.	896
CU	III	2524.413	2523.654	50		724		CU	III	2525.973	2525.213	25		724
FE	I	2524.4209	2523.6618	140		896		AL	III	2526.018	2525.244	D		826
F	IV	2524.43	2523.67	25		173		CO	II	2526.03	2525.27	20		825
CR	II	2524.52	2523.76	15	199.	340		NI	II	2526.056	2525.296	180	61.	835
CU	III	2524.533	2523.774	5		724		N	II	2526.08	2525.32		42.	521
CR	II	2524.69	2523.93	15	199.	340		CR	II	2526.11	2525.35	20		340

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CO	II	2526.14	2525.38	1		825		MN	II	2528.166	2527.406	60		328	
FE	II	2526.1476	2525.3881	140	159.	896	H	FE	I	2528.1949	2527.4349	450	7.	896	
N	II	2526.23	2525.48	1	42.	200		F	III	2528.223	2527.463	12		537	
AR	II	2526.239	2525.479	40	.	506		NI	II	2528.231	2527.471	15		835	
TI	II	2526.378	2525.619	30	4.	488		CU	III	2528.255	2527.495	10		724	
CO	I	2526.386	2525.626	4		603		AL	IV	2528.26	2527.50	200		888	
MN	I	2526.428	2525.669	8		148		AS	II	2528.297	2527.537	320		425	
N	VII	2526.5	2525.8			309		CR	-I	2528.33	2527.57	1		341	
FE	II	2526.622	2525.862	12	241.	896		CR	II	2528.33	2527.57	7	9.	340	
MN	II	2526.63	2525.87	2		328		FE	II	2528.465	2527.705	30	329.	896	
FE	II	2526.679	2525.919	8	363.	896		C	IV	2528.5	2527.7	7	13.01	35	F
CO	II	2526.81	2526.05	10		825		N	II	2528.522	2527.762	20	41.	200	
MN	II	2526.84J	2526.063	20		328		CO	II	2528.58	2527.82	M		825	
FE	II	2526.835	2526.075	25	159.	896	H	TI	III	2528.600	2527.840	920	7.	227	
AR	II	2526.836	2526.076	20		506		AS	II	2528.618	2527.858	5		425	
N	II	2526.93	2526.17	1	19.	200		MN	II	2528.66	2527.90	5		328	
FE	I	2526.957	2526.198	25		896	M	V	II	2528.663	2527.903	230	50.	478	
V	I	2526.973	2526.213	100	17.	1000		CU	III	2528.673	2527.913	3		724	
CO	II	2527.04	2526.28	1		825		ZN	II	2528.71	2527.96	50		457	
MN	II	2527.048	2526.287	20		328		ZN	III	2528.72	2527.96	15		162	
FE	II	2527.0538	2526.2941	170	145.	896	H	TI	I	2528.750	2527.991	50	8.	488	
CR	II	2527.06	2526.30	15	320.	340		MN	II	2528.771	2528.011	100		328	
F	III	2527.068	2526.308	4		537		CR	I	2528.78	2528.02	15	29.	341	
CU	II	2527.0879	2526.3279	1		612		NI	I	2528.807	2528.048	5	51.	488	
ZN	III	2527.13	2526.37	10		162		CL	III	2528.84	2528.08	500	9.	43	
CR	I	2527.31	2526.55	2		341		FE	I	2528.932	2528.172	15		896	M
CU	II	2527.3525	2526.5927	125	92.	612		MN	I	2528.944	2528.184	2		148	
NI	II	2527.430	2526.670	3		835		CO	I	2528.946	2528.186	3		603	
CU	III	2527.515	2526.755	10		724		CO	II	2528.979	2528.219	10	27.	825	
FE	II	2527.596	2526.836	8	33.	896		CR	I	2529.01	2528.25	10	29.	341	
FE	I	2527.668	2526.909	15		896	M	MN	II	2529.04	2528.28	10		328	
ZN	III	2527.74	2526.98	40		162		AR	II	2529.078	2528.318	40		506	
MN	II	2527.83	2527.07	20		328		V	II	2529.226	2528.466	200	50.	478	
FE	II	2527.865	2527.105	20	159.	896	H	FE	I	2529.268	2528.508	15		896	M
CR	I	2527.87	2527.11	20	30.	341		SI	I	2529.2689	2528.5086	450	1.	608	
FE	I	2527.92	2527.16	5		605	N	SI	III	2529.276	2528.471	G	81.	768	
CU	III	2527.949	2527.189	35		724		CU	III	2529.312	2528.552	3		724	
FE	I	2528.027	2527.267	20		896		CR	I	2529.32	2528.56	8	29.	341	
AL	IV	2528.03	2527.27	150		888		CL	II	2529.363	2528.602	21		613	
CR	II	2528.16	2527.40	2	308.	340		CO	II	2529.375	2528.615	40	14.	825	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
ZN	III	2529.38	2528.62	20		162		FE	II	2530.869	2530.108	40	178.	896	H
FE	II	2529.436	2528.676	0	176.	488		CU	III	2530.882	2530.122	1		724	
AR	II	2529.439	2528.679	30		506		CO	II	2530.885	2530.124	30	27.	825	
MN	I	2529.460	2528.700	8	30.	148		CO	I	2530.895	2530.134	40	56.	603	
V	II	2529.593	2528.833	215	50.	478		V	I	2530.934	2530.174	80	19.	1000	
FE	II	2529.638	2528.877	20		896		CR	II	2530.94	2530.18	M 100	108.	340	
CO	II	2529.66	2528.90	M		825		CR	II	2530.96	2530.20	M 50	308.	340	
FE	I	2529.67	2528.91	3	162.	605		NE	II	2530.989	2530.228	10		563	
CR	I	2529.72	2528.96	5		341		CL	VIII	2531.	2530.			111	
CO	I	2529.727	2528.967	50	3.	603		NA	III	2531.010	2530.250	450		516	
FE	II	2529.838	2529.077	20	357.	896		B	IV	2531.1	2530.3	60		221	
MN	II	2529.839	2529.080	40		328		O	VIII	2531.1	2530.4			309	
CO	II	2529.88	2529.12	12		825		O	II	2531.12	2530.36	60	21.	468	P
AS	II	2529.892	2529.132	2		425		AR	II	2531.184	2530.423	10		506	
FE	I	2529.8952	2529.1348	280	7.	896		CR	I	2531.20	2530.44	15	30.	341	
MG	III	2529.95	2529.19	160	5.	2		MN	II	2531.209	2530.447	15		328	
CR	I	2529.96	2529.20	5	28.	341		BE	IV	2531.259	2530.498			309	
FE	II	2529.989	2529.229	25	241.	896	H	V	IV	2531.280	2530.520	2		829	
CU	II	2530.0644	2529.3040	150	131.	612		NI	II	2531.292	2530.532	5		835	
FE	I	2530.069	2529.308	80		896		C	IV	2531.3	2530.6	250	14.03	35	F
MN	II	2530.078	2529.317	1		328		CO	I	2531.307	2530.546	5		603	
O	III	2530.167	2529.407	4		1032		CO	II	2531.33	2530.57	25		825	
MN	II	2530.21	2529.45	5		328		CU	III	2531.331	2530.570	5		724	
CR	II	2530.24	2529.48	25	9.	340		F	III	2531.409	2530.648	200		537	
CO	II	2530.28	2529.52	2		825		FE	I	2531.4480	2530.6872	140	8.	896	
FE	II	2530.310	2529.549	155	177.	896	H	MN	II	2531.487	2530.725	140	55.	328	
AL	IV	2530.39	2529.63	6		888		CR	II	2531.54	2530.78	M 20	126.	340	
TI	II	2530.50	2529.74	0	4.	488		CU	III	2531.629	2530.868	50		724	
CU	III	2530.528	2529.768	10		724		FE	I	2531.730	2530.969	15		896	M
FE	I	2530.5963	2529.8357	125	7.	896		AS	II	2531.778	2531.017	2		425	
GE	II	2530.597	2529.837	20	17.	676		CR	III	2531.779	2531.019	500		893	
TI	I	2530.626	2529.866	40	8.	488		CO	II	2531.79	2531.03	M		825	
AL	IV	2530.66	2529.90	10		888		FE	II	2531.842	2531.082	5	33.	488	H
CR	II	2530.66	2529.90	75	308.	340		CU	III	2531.949	2531.188	10		724	
FE	II	2530.689	2529.929	5	329.	488		V	I	2531.96	2531.20	4		1000	
C	IV	2530.74	2529.98	900	15.	35		TI	II	2532.026	2531.266	20	4.	488	
MN	II	2530.759	2529.999	20		328		CU	III	2532.075	2531.314	50		724	
CO	II	2530.802	2530.042	M		825		AS	II	2532.079	2531.318	5		425	
ZN	I	2530.85	2530.09	4	8.	488		CO	II	2532.11	2531.35	M		825	
FE	II	2530.869	2530.108	40	363.	896	H	CO	I	2532.115	2531.354	5	57.	603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	I	2532.190	2531.429	8	162.	896		CR	II	2533.75	2532.99	M 6	110.	340	
FE	I	2532.26	2531.51	1	162.	605		MN	I	2533.811	2533.050	20	30.	148	
NA	II	2532.308	2531.548	90	13.	693		AS	II	2533.896	2533.134	30		425	
V	II	2532.376	2531.616	3		478		FE	I	2533.902	2533.140	15		896	M
CL	III	2532.52	2531.76	500	22.	43		AL	II	2533.92	2533.16	5	15.	488	
CR	I	2532.52	2531.76	5	28.	341		GE	I	2533.9918	2533.2305	150	2.	7	
V	I	2532.539	2531.778	3		1000		MN	II	2533.997	2533.236	30		320	
O	III	2532.54	2531.78	0		1032		CU	III	2534.010	2533.249	3		724	
MN	II	2532.560	2531.799	140	55.	328		ZN	III	2534.05	2533.29	50		162	
CR	I	2532.58	2531.82	3		341		CU	III	2534.069	2533.308	5		724	
CR	II	2532.60	2531.84	M 25	9.	340		V	III	2534.07	2533.30	40		325	
FE	II	2532.632	2531.871	20		896		MN	II	2534.090	2533.329	220	55.	328	
FE	III	2532.650	2531.890	60	92.	188		CR	I	2534.11	2533.35	3		341	
MN	II	2532.653	2531.892	100	55.	328		V	II	2534.126	2533.365	15	50.	478	
V	II	2532.662	2531.902	4		478		AL	II	2534.17	2533.41	2	15.	488	
CU	III	2532.799	2532.038	200		724		CR	II	2534.21	2533.45	M 10	108.	340	
NI	I	2532.837	2532.076	5	27.	488		MN	II	2534.223	2533.462	80	55.	328	
ZN	III	2532.85	2532.09	50		162		MN	II	2534.371	2533.610	25		328	
FE	II	2532.854	2532.093	0	392.	488		FE	II	2534.388	2533.627	110		896	H
NE	II	2532.914	2532.153	60		563		F	III	2534.409	2533.648	250		537	
CR	I	2532.93	2532.17	2		341		CU	III	2534.448	2533.686	170		724	
CO	I	2532.937	2532.176	10	56.	603		FE	I	2534.498	2533.737	12		896	M
CO	II	2532.937	2532.176	30		825		C	IV	2534.53	2533.77	25	14.02	35	
NE	II	2532.950	2532.189	50		563		CO	II	2534.53	2533.77	M		825	
NI	II	2532.992	2532.231	5		835		V	I	2534.561	2533.800	10		1000	
V	I	2533.041	2532.280	5		1000		FE	I	2534.565	2533.804	60		896	
CU	III	2533.102	2532.341	2		724		MN	II	2534.579	2533.817	8		328	
MN	II	2533.103	2532.341	20		328		CO	II	2534.59	2533.83	40	27.	825	
FE	I	2533.134	2532.373	12		896	M	MN	I	2534.657	2533.896	2		148	
SI	I	2533.1425	2532.3814	110	86.	608		AR	III	2534.68	2533.92	30	8.	488	
CL	III	2533.24	2532.48	500	22.	43		CR	X	2534.7	2533.9			726	F
O	III	2533.25	2532.49	0		1032		CL	III	2534.71	2533.95	100	21.	38	
F	III	2533.323	2532.562	4		537		V	II	2534.730	2533.969	9		478	
CU	III	2533.409	2532.648	25		724		P	I	2534.748	2533.987	500	8.	496	
CR	II	2533.41	2532.65	M 20		340		CU	I	2534.79	2534.03	2		672	
AL	II	2533.416	2532.655	10	15.	488		O	III	2534.854	2534.092	90		1032	
MN	II	2533.542	2532.781	220	55.	328		MN	II	2534.859	2534.098	170	55.	328	
CU	III	2533.624	2532.863	200		724		V	I	2534.967	2534.206	3	19.	1000	
FE	I	2533.6366	2532.8754	25	56.	896		MN	II	2534.983	2534.221	280	55.	328	
V	IV	2533.743	2532.982	20		829		V	II	2535.025	2534.263	9	50.	478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	2535.09	2534.33	M 40	9.	340		V	I	2536.597	2535.835	1		489	
CO	II	2535.15	2534.39	1		825		ZN	III	2536.62	2535.86	100		162	
MN	II	2535.156	2534.393	80		328		TI	II	2536.643	2535.881	10	4.	488	
FE	II	2535.178	2534.416	100	159.	896	H	CO	II	2536.709	2535.947	00		825	
CR	II	2535.25	2534.49	M 5	244.	340		CR	I	2536.72	2535.96	6		341	
V	II	2535.280	2534.519	80	38.	478		CO	I	2536.723	2535.961	10	3.	603	
CO	II	2535.4	2534.6	M		825		CU	III	2536.727	2535.965	10		724	
TI	II	2535.401	2534.640	20	4.	488		MN	II	2536.740	2535.977	170	21.	328	
AR	II	2535.4705	2534.7088	130	18.	867		MN	II	2536.76	2536.00	100	21.	328	
MN	II	2535.566	2534.804	15		328		AR	II	2536.7770	2536.0150	120		867	
V	I	2535.586	2534.825	15	87.	1000		CR	II	2536.78	2536.02	M 2	320.	340	
CO	II	2535.71	2534.95	M		825		CU	I	2536.79	2536.03	2		672	
CR	II	2535.72	2534.96	M 3	9.	340		CO	II	2536.83	2536.07	20.		825	
NI	II	2535.721	2534.959	120		835		CR	I	2536.97	2536.21	3		341	
CO	III	2535.74	2534.98	2		673		CU	III	2537.032	2536.270	10		724	
MN	II	2535.803	2535.041	60		328		CR	II	2537.11	2536.35	M 5	41.	340	
CU	III	2535.845	2535.083	25		724		CR	I	2537.26	2536.50	2		341	
FE	I	2535.8895	2535.1277	25	60.	896		CO	I	2537.265	2536.503	1		603	
AR	II	2536.012	2535.250	30		506		CO	II	2537.28	2536.52	25		825	
CO	II	2536.058	2535.296	M		825		F	IV	2537.38	2536.62	4		173	
NI	II	2536.064	2535.302	2		835		V	II	2537.41	2536.65	2		478	
CU	III	2536.078	2535.316	290		724		CU	I	2537.43	2536.67	2		672	
CO	I	2536.121	2535.359	5		603		FE	II	2537.435	2536.673	60	241.	896	H
CO	II	2536.121	2535.359	M		825		FE	I	2537.459	2536.697	10		896	M
FE	II	2536.124	2535.362	10	405.	896		FE	I	2537.5547	2536.7925	140	58.	896	
MN	II	2536.16	2535.40	10		328		CO	II	2537.56	2536.80	2		825	
CR	II	2536.18	2535.42	M 3		340		FE	II	2537.505	2536.803	140	159.	896	H
V	I	2536.203	2535.441	2		489		FE	II	2537.608	2536.845	50	159.	896	
FE	I	2536.211	2535.449	40		896	M	V	II	2537.616	2536.854	2		478	
CR	I	2536.23	2535.47	10	9.	341		CU	I	2537.62	2536.86	2		672	
FE	II	2536.248	2535.486	110	177.	896	H	MN	I	2537.640	2536.878	5		148	
NI	II	2536.263	2535.501	100		835		CR	II	2537.69	2536.93	M 3	41.	340	
NI	II	2536.342	2535.580	5		835		V	I	2537.694	2536.932	8		1000	
CR	II	2536.36	2535.60	M 1	304.	340		F	III	2537.829	2537.067	50		537	
P	I	2536.368	2535.606	700	8.	496		FE	II	2537.900	2537.138	50	363.	896	
FE	I	2536.3693	2535.6074	200	7.	896		NI	II	2537.919	2537.157	15		835	
MN	II	2536.420	2535.658	320	21.	328		AR	II	2537.922	2537.160	10		506	
NI	II	2536.458	2535.696	3		835		FE	I	2537.932	2537.170	50		896	M
AR	II	2536.520	2535.758	10		506		CR	II	2537.95	2537.19	M 2	41.	340	
MN	II	2536.544	2535.782	30		328		MN	II	2538.027	2537.265	3		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	II	2538.12	2537.36	40		328		CR	I	2539.71	2538.95	12	9.	341	
CO	II	2538.219	2537.457	10		875		CO	II	2539.72	2538.96	2		825	
FE	I	2538.2208	2537.4585	40	102.	896		C	II	2539.75	2538.98	10	42.	287	
MN	II	2538.242	2537.480	8		328		FE	II	2539.756	2538.993	125	158.	896	H
N	II	2538.25	2537.49	1	40.	203		SI	V	2539.79	2539.03	100		941	
FE	III	2538.299	2537.537	40	137.	188		MN	II	2539.810	2539.046	40		328	
MN	II	2538.335	2537.573	40		328		NI	II	2539.863	2539.100	75	48.	835	
AR	II	2538.350	2537.582	10		506		V	II	2539.96	2539.20	20	186.	478	
CR	I	2538.37	2537.61	1		341		MN	II	2540.035	2539.272	80		328	
V	II	2538.381	2537.619	20	189.	478		FE	I	2540.091	2539.328	25		896	M
AS	II	2538.467	2537.705	50		425		FE	I	2540.1194	2539.3566	50	55.	896	
N	II	2538.504	2537.742		40.	521	P	ZN	III	2540.14	2539.38	50		162	
CR	III	2538.513	2537.751	500		893		MN	II	2540.216	2539.453	15		328	
SI	V	2538.55	2537.79	90		941		AS	II	2540.2467	2539.4839	10		425	
N	II	2538.635	2537.873	40	40.	200		LI	II	2540.250	2539.487		I	307	
MN	II	2538.681	2537.919	320	55.	328		D	III	2540.263	2539.502	10		1032	
FE	III	2538.696	2537.934	10	92.	188		CR	II	2540.28	2539.52	M 15	9.	340	
MN	II	2538.804	2538.041	220	55.	328		F	III	2540.328	2539.565	110		537	
FE	II	2538.967	2538.204	50	319.	896	H	MN	II	2540.33	2539.56	15		328	
CR	II	2539.07	2538.31	M 100	308.	340		FE	I	2540.3501	2539.5873	6	56.	896	
MN	XI	2539.1	2538.3			726	F	MN	I	2540.404	2539.642	9	29.	148	
CO	I	2539.101	2538.339	6		603		CO	III	2540.41	2539.65	2		673	
FE	II	2539.153	2538.393	5	178.	484	H	MN	I	2540.555	2539.792	5	29.	148	
CR	II	2539.21	2538.45	M 20	308.	340		FE	II	2540.558	2539.797	20	176.	484	
FE	II	2539.264	2538.501	40	160.	896	H	FE	I	2540.617	2539.854	6		896	M
NE	II	2539.272	2538.510	60		563		NI	II	2540.665	2539.902	100		835	
CR	I	2539.29	2538.53	2	28.	341		NI	I	2540.780	2540.019	5	53.	488	
CR	II	2539.30	2538.54	2	255.	340		CR	I	2540.79	2540.03	2		341	
MN	II	2539.308	2538.545	10		328		AR	II	2540.800	2540.037	30		506	
FE	II	2539.337	2538.577	20	268.	488		CU	III	2540.808	2540.045	10		724	
CR	III	2539.369	2538.609	250		893		FE	II	2540.814	2540.053	1	267.	488	
CU	III	2539.421	2538.659	340		724		TI	III	2540.820	2540.057	850	7.	227	
FE	II	2539.443	2538.680	20	363.	896		O	III	2540.84	2540.08	0		1032	
CO	I	2539.46	2538.70	1		603		CU	III	2540.916	2540.153	2		724	
FE	I	2539.4618	2538.6992	40		896		MN	II	2540.954	2540.191	100		328	
FE	II	2539.562	2538.799	100	158.	896	H	CR	II	2540.98	2540.22	M 3	72.	340	
CO	II	2539.57	2538.81	1		825		MN	III	2541.008	2540.245	10		301	
FE	I	2539.592	2538.829	25		896	M	F	III	2541.025	2540.262	150		537	
MN	II	2539.649	2538.886	60		328		CU	I	2541.14	2540.38	5		672	
FE	II	2539.672	2538.909	100	158.	896	H	CU	II	2541.147	2540.384	1		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
C	II	2541.15	2540.39	25	42.	287		MN	II	2542.788	2542.024	40		328	
FE	I	2541.204	2540.441	10		896	M	FE	I	2542.865	2542.101	170	162.	896	
CU	III	2541.209	2540.446	5		724		FE	II	2543.077	2542.316	5	33.	488	
CR	I	2541.24	2540.48	2		341		ZN	I	2543.08	2542.32	12	8.	488	
CR	II	2541.24	2540.48	M 2	255.	340		NI	II	2543.117	2542.354	15		835	
FE	II	2541.286	2540.523	20	349.	896		CR	II	2543.14	2542.38	M 3	90.	340	
NI	XIV	2541.3	2540.5			726	F	GE	IV	2543.20	2542.44	20		406	
CO	II	2541.394	2540.631	40	27.	825		TI	III	2543.207	2542.444	100	7.	227	
FE	II	2541.425	2540.661	140	177.	896	H	V	II	2543.22	2542.46	20		478	
FE	II	2541.430	2540.669	160	343.	488	H	MN	I	2543.254	2542.491	10	29.	148	
FE	I	2541.493	2540.730	40		896	M	N	II	2543.370	2542.609		18.1	521	P
MN	II	2541.512	2540.749	140	32.	328		CL	III	2543.41	2542.65	200	13.	38	
CL	III	2541.60	2540.84	300		43		MN	II	2543.415	2542.651	100	47.	328	
MN	II	2541.63	2540.86	15		328		O	III	2543.489	2542.727	60		1032	
SC	II	2541.63	2540.87	1		1028		CR	II	2543.49	2542.73	M 10	318.	340	
C	II	2541.64	2540.88	4	42.	287		FE	II	2543.500	2542.736	20	223.	896	H
FE	I	2541.7350	2540.9719	240	7.	896		F	III	2543.534	2542.770	450		537	
FE	II	2541.865	2541.101	80	177.	896	H	FE	II	2543.548	2542.785	25		896	
MN	II	2541.875	2541.112	220	22.	328		NA	III	2543.555	2542.794	420		516	
MN	II	2541.927	2541.163	140	22.	328		CR	I	2543.635	2542.872	3	28.	341	
CR	I	2542.122	2541.359	20	29.	341		MN	II	2543.687	2542.923	280	21.	328	
SI	II	2542.156	2541.393	2	26.	678		V	II	2543.698	2542.935	15	70.	478	
CA	I	2542.244	2541.483		4.	101		CU	II	2543.6995	2542.9349	2		612	
CA	III	2542.261	2541.498	360	9.	64		MN	II	2543.742	2542.979	140	21.	328	
BR	II	2542.263	2541.502	600		606		FE	II	2543.843	2543.079	15		896	
AR	II	2542.36	2541.59	5		506		CR	I	2543.87	2543.11	6		341	
CR	I	2542.44	2541.68	8	29.	341		CR	II	2543.90	2543.14	M 30	108.	340	
CR	II	2542.50	2541.74	M 2		340		CO	II	2543.99	2543.22	M		825	
MN	II	2542.511	2541.748	20		328		CO	I	2543.995	2543.232	1		603	
V	I	2542.528	2541.765	7		1000		CO	II	2544.12	2543.36	1		825	
TI	IV	2542.549	2541.786	150	4.	721		F	III	2544.121	2543.357	150		537	
SI	III	2542.581	2541.818	1000	6.09	768		FE	II	2544.141	2543.377	60	159.	896	H
MN	III	2542.583	2541.820	1		301		FE	II	2544.194	2543.430	60	177.	896	H
O	III	2542.586	2541.825	0		1032		C	II	2544.21	2543.45	10	42.	287	
FE	II	2542.600	2541.836	60	158.	896	H	MN	II	2544.218	2543.454	320	21.	328	
NI	II	2542.639	2541.876	2		835		NI	III	2544.277	2543.513	30	22.	661	
CR	I	2542.67	2541.91	3	29.	341		CU	III	2544.321	2543.557	25		724	
TI	I	2542.678	2541.917	200	8.	488		MN	I	2544.356	2543.593	2		148	
CO	II	2542.713	2541.950	50	14.	825		V	I	2544.487	2543.723	20	15.	1000	
NI	II	2542.758	2541.994	3		835		CU	III	2544.502	2543.738	3		724	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	I	2544.527	2543.763	4	29.	148		CO	II	2546.03	2545.27	4		825	
F	III	2544.533	2543.769	110		537		FE	II	2546.208	2545.444	20	267.	896	
NA	I	2544.604	2543.841	F	4.	1019		V	II	2546.224	2545.460	15	4.	478	
MN	II	2544.615	2543.851	40		328		CR	II	2546.26	2545.51	M 1	308.	340	
NA	I	2544.636	2543.872	F	4.	1019		FE	II	2546.275	2545.513	5	178.	488	
FE	I	2544.687	2543.923	155	162.	896		AR	II	2546.406	2545.642	30		506	
MN	II	2544.748	2543.984	80		328		CR	I	2546.409	2545.645	12	24.	341	
CL	II	2544.758	2543.994	77	13.	613		CO	II	2546.45	2545.69	10		825	
SI	II	2544.810	2544.046	3	26.	678		V	II	2546.460	2545.696	2		478	
MN	II	2544.94	2544.18	20		328		FE	III	2546.514	2545.750	25	92.	188	
CO	II	2545.001	2544.237	00		825		CR	II	2546.63	2545.87	M 7	318.	340	
CO	I	2545.016	2544.252	50	3.	603		NI	II	2546.667	2545.903	140	18.	835	H
CR	II	2545.02	2544.26	M 15	9.	340		CO	II	2546.67	2545.91	5		825	
V	II	2545.05	2544.29	10	78.	478		V	I	2546.682	2545.981	30	15.	1000	
MN	II	2545.069	2544.304	100		328		FE	I	2546.7429	2545.9785	280	7.	896	
CO	II	2545.11	2544.35	20		825		NI	II	2546.755	2545.990	50		835	
CR	III	2545.126	2544.364	400	42.	893		MN	II	2546.820	2546.056	40		328	
FE	I	2545.226	2544.462	1	58.	378		SI	III	2546.857	2546.093	160	56.	768	
CO	II	2545.279	2544.515	00		825		FE	I	2546.869	2546.104	12		896	M
SE	III	2545.32	2544.56	1		587		CR	III	2546.898	2546.136	200		893	
CO	II	2545.33	2544.56	8		825		CO	II	2546.926	2546.162	25		825	
CR	II	2545.34	2544.58	M 2	90.	340		F	III	2546.935	2546.171	300		537	
MN	II	2545.37	2544.61	0		328		FE	I	2546.9389	2546.1745	40		896	
CO	II	2545.39	2544.63	M		825		MN	II	2546.96	2546.19	5		328	
F	III	2545.419	2544.655	300		537		CO	II	2546.99	2546.22	3		825	
FE	I	2545.422	2544.658	20		896		V	IV	2546.992	2546.228	20		829	
AR	II	2545.4482	2544.6841	120		867	M	V	II	2547.075	2546.311	5	37.	478	
CR	I	2545.466	2544.702	15	9.	341		MN	III	2547.078	2546.314	10		301	
FE	I	2545.469	2544.705	125	162.	896		CR	I	2547.117	2546.353	5		341	
CU	II	2545.5692	2544.8051	300	92.	612		CR	III	2547.14	2546.38	30		587	
CL	II	2545.621	2544.856	100	13.	613		N	II	2547.151	2546.388		18.1	521	P
CO	I	2545.628	2544.862	4		603		V	III	2547.18	2546.41	15		325	
FE	II	2545.737	2544.972	40	147.	896	H	O	III	2547.187	2546.424	40		1032	
ZN	II	2545.8	2545.0	5		457		FE	II	2547.206	2546.442	40		896	
CO	II	2545.809	2545.045	20	17.	825		CR	II	2547.21	2546.45	M 20	108.	340	
MN	II	2545.919	2545.155	140	47.	328		FE	I	2547.272	2546.508	10		896	M
CR	III	2545.951	2545.189	400		893		MN	I	2547.346	2546.582	4		148	
CR	I	2545.97	2545.21	10	27.	341		CU	III	2547.361	2546.596	50		724	
FE	II	2545.985	2545.220	40	159.	896	H	CO	II	2547.377	2546.613	10		825	
SC	II	2546.00	2545.24	5	1.	488		FE	II	2547.434	2546.670	80	177.	896	H

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2547.464	2546.700	80		328		CU	III	2548.703	2547.938	3		724	
CO	II	2547.504	2546.740	40		825		MN	II	2548.730	2547.966	20		328	
CU	I	2547.53	2546.77	0		672		CO	II	2548.74	2547.98	5		825	
C	II	2547.57	2546.81	10	50.	287		SE	I	2548.74	2547.98	300	20.	600	
AR	II	2547.630	2546.866	20		506		TI	III	2548.78	2548.01	25		227	
FE	I	2547.631	2546.866	80		896		CR	II	2548.80	2548.04	M 25	108.	340	
TI	II	2547.64	2546.88	M		601		FE	I	2548.849	2548.084	15		896	M
TI	IV	2547.644	2546.880	250	4.	721		F	IV	2548.86	2548.10	2		173	
CL	II	2547.721	2546.956	160	13.	613		FE	II	2548.929	2548.166	1	176.	488	
F	IV	2547.74	2546.98	1		173		CO	I	2548.958	2548.194	0		603	
CO	II	2547.76	2547.00	10		825		CO	II	2548.958	2548.194	M		825	
CU	III	2547.773	2547.008	3		724		V	III	2548.98	2548.22	750	14.	791	
CR	II	2547.80	2547.04	M 1		340		MN	II	2549.012	2548.257	140	47.	328	
V	I	2547.837	2547.073	6	14.	1000		FE	II	2549.090	2548.325	15	146.	896	H
AR	II	2547.9377	2547.1730	30		867		CO	I	2549.098	2548.333	20	112.	603	
MN	II	2547.95	2547.18	20		328		CO	II	2549.102	2548.337	40		825	
NI	II	2547.952	2547.188	8	57.	835		MN	II	2549.14	2548.37	50		328	
MG	I	2547.97	2547.21			708	P	CR	II	2549.18	2548.42	5	308.	340	
CR	I	2547.970	2547.206	5		341		F	IV	2549.21	2548.45	0		173	
MN	II	2548.07	2547.31	60		328		MG	I	2549.27	2548.51			708	P
TI	IV	2548.079	2547.314	10	4.	721		CR	II	2549.34	2548.58	40	109.	340	
FE	II	2548.102	2547.338	15	158.	896	H	TI	III	2549.353	2548.588	60		227	
C	II	2548.11	2547.35	4	50.	287		FE	II	2549.353	2548.589	20	158.	896	H
NI	I	2548.172	2547.409	5	52.	488		CR	III	2549.361	2548.598	250		893	
O	III	2548.225	2547.462	10		1032		V	II	2549.450	2548.685	60	38.	478	
FE	I	2548.233	2547.468	0		378		TI	II	2549.47	2548.71	M		601	
CU	I	2548.24	2547.48	10	44.	672		FE	II	2549.508	2548.743	100	145.	896	H
MN	II	2548.24	2547.48	25		328		MN	II	2549.515	2548.750	320	55.	328	
CR	II	2548.26	2547.50	M 20		340		TI	III	2549.530	2548.765	40		227	
MN	III	2548.272	2547.507	7		301		MN	I	2549.56	2548.80	3		148	
ZN	III	2548.36	2547.60	10		162		CU	III	2549.606	2548.841	10		724	
GE	IV	2548.41	2547.64	2		406		CO	I	2549.640	2548.875	3		603	
MN	II	2548.426	2547.662	30		328		FE	I	2549.677	2548.912	20		896	M
FE	II	2548.503	2547.740	0	176.	488		FE	II	2549.688	2548.922	15		896	
CR	II	2548.52	2547.76	M 10	71.	340		CU	III	2549.836	2549.071	2		724	
CL	II	2548.535	2547.770	91	13.	613		CL	II	2549.846	2549.080	10		613	
V	I	2548.597	2547.832	1		1000		FE	II	2549.848	2549.083	80	284.	896	
CR	I	2548.632	2547.868	8		341		CU	III	2549.950	2549.185	5		724	
P	IV	2548.645	2547.880	90		937		V	II	2550.037	2549.272	120	38.	478	
MN	II	2548.662	2547.898	50		328		CO	II	2550.06	2549.29	M		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	2550.061	2549.296	4	4.	603		FE	II	2551.448	2550.683	50	240.	896	H
V	II	2550.071	2549.306	20		782		FE	I	2551.578	2550.812	1	55.	378	
MN	II	2550.082	2549.317	40		328		F	III	2551.588	2550.823	200		537	
FE	II	2550.160	2549.395	80	177.	896		CR	III	2551.604	2550.840	300	57.	893	
FE	II	2550.226	2549.461	60	177.	896		CU	III	2551.654	2550.889	1		724	
CU	III	2550.284	2549.519	2		724		V	IV	2551.736	2550.971	2		829	
NI	I	2550.295	2549.532	10	51.	488		NI	II	2551.800	2551.034	10	17.	835	
CR	I	2550.313	2549.548	40	24.	341		FE	I	2551.858	2551.092	40		896	
NI	II	2550.313	2549.548	75	48.	835		FE	III	2551.863	2551.098	90	130.	188	
MN	II	2550.378	2549.612	40		328		MG	I	2551.92	2551.16			708	P
F	III	2550.378	2549.613	250		537		FE	II	2551.970	2551.205	12	328.	896	
FE	I	2550.3784	2549.6132	240	7.	896		CO	I	2551.995	2551.230	0		603	
V	I	2550.38	2549.62	3.		489		CR	II	2552.02	2551.25	2		340	
V	II	2550.418	2549.653	10	69.	478		GA	II	2552.02	2551.26	30		652	
O	III	2550.430	2549.667	10		1032		MN	II	2552.12	2551.35	40		328	
CR	II	2550.48	2549.72	1	108.	340		CR	I	2552.13	2551.36	2	68.	341	
FE	II	2550.532	2549.767	40	266.	896		SC	IV	2552.202	2551.438	1		720	
AR	II	2550.5524	2549.7872	60		867		MN	II	2552.30	2551.53	50		328	
MN	II	2550.583	2549.818	60		328		AR	II	2552.337	2551.571	10		506	
V	I	2550.599	2549.834	5		489		CR	II	2552.35	2551.58	50	109.	340	
CO	II	2550.64	2549.88	10		825		MN	II	2552.366	2551.599	60	47.	328	
CL	II	2550.644	2549.878	240	13.	613		F	IV	2552.37	2551.61	5		173	
V	I	2550.730	2549.965	12	15.	1000		N	II	2552.41	2551.64	20	47.	200	
N	II	2550.74	2549.98		47.	521	P	V	II	2552.489	2551.724	15	37.	478	
K	III	2550.78	2550.02	90	8.	488		MN	II	2552.617	2551.851	220	32.	328	
CO	II	2550.79	2550.02	50		825		CR	II	2552.65	2551.88	7	109.	340	
FE	II	2550.793	2550.027	60	240.	896	H	CU	III	2552.676	2551.910	100		724	
FE	II	2550.914	2550.149	25	363.	696		CR	I	2552.82	2552.05	2		341	
CR	II	2551.05	2550.28	15	90.	340		F	III	2552.831	2552.065	150		537	
MN	II	2551.092	2550.326	100		328		CU	III	2552.888	2552.122	5		724	
CU	III	2551.125	2550.359	170		724		CR	II	2552.92	2552.15	2		340	
CR	I	2551.129	2550.364	8	25.	341		V	II	2553.030	2552.264	2		478	
V	I	2551.16	2550.40	1		489		MN	II	2553.039	2552.272	15		328	
FE	I	2551.271	2550.506	12		896	M	SC	II	2553.14	2552.38	10	1.	488	
MN	II	2551.28	2550.51	5		328		CO	II	2553.149	2552.383	15		825	
CO	II	2551.29	2550.53	2		825		ZN	III	2553.30	2552.54	20		162	
CR	II	2551.30	2550.54	1		340		CU	I	2553.32	2552.56	1		672	
FE	II	2551.339	2550.575	20	158.	488	H	FE	I	2553.3717	2552.6059	40	8.	896	
V	II	2551.345	2550.580	3		478		NI	II	2553.383	2552.617	100		835	
V	II	2551.352	2550.587	1		782		V	I	2553.414	2552.648	50	15.	1000	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	III	2553.437	2552.671	170		724		V	II	2554.83	2554.06	10		478	
CU	III	2553.540	2552.774	15		724		SI	V	2554.83	2554.07	50		941	
CR	I	2553.56	2552.79	10	27.	341		V	II	2554.99	2554.22	15		478	
FE	I	2553.5965	2552.8306	15	55.	896		CR	II	2555.00	2554.23	4	313.	340	
GA	II	2553.63	2552.87	50		652		V	III	2555.00	2554.24	800	14.	791	
FE	III	2553.702	2552.937	60	150.	198		ZN	III	2555.04	2554.28	20		162	
V	II	2553.725	2552.960	60	69.	478		CU	III	2555.062	2554.295	75		724	
MN	II	2553.73	2552.96	40		328		CU	III	2555.186	2554.419	120		724	
CO	I	2553.770	2553.004	40	56.	603		FE	II	2555.200	2554.435	1	298.	488	
V	II	2553.794	2553.028	40	69.	478		F	IV	2555.23	2554.47	4		173	
CR	I	2553.830	2553.064	15	24.	341		C	II	2555.244	2554.478	25	30.	287	
GE	II	2553.837	2553.071	20	17.	676		FE	I	2555.284	2554.518	1		378	
CU	III	2553.86	2553.115	290		724		MN	II	2555.284	2554.518	80		328	
MN	II	2553.924	2553.158	80	32.	328		SI	II	2555.294	2554.530	10	26.	678	
FE	I	2553.958	2553.193	7		605	N	MG	I	2555.330	2554.565			708	P
P	I	2554.019	2553.253	600	8.	496		CA	I	2555.527	2554.761	2	11.	1018	
MG	I	2554.021	2553.256			708	P	V	I	2555.622	2554.856	15	15.	1000	
MN	II	2554.033	2553.267	170	55.	328		P	I	2555.662	2554.904	500	8.	496	
CU	I	2554.06	2553.29	2		672		MN	II	2555.68	2554.91	3		328	
CR	II	2554.10	2553.33	3	313.	340		MN	III	2555.701	2554.935	5		301	
CO	I	2554.103	2553.337	10	56.	603		FE	II	2555.715	2554.950	5	205.	488	
CU	II	2554.109	2553.343	25		612		CU	III	2555.751	2554.985	1		724	
CO	II	2554.13	2553.36	40		825		NI	II	2555.754	2554.988	140	62.	835	
NI	I	2554.138	2553.373	5	4.	488		FE	II	2555.834	2555.067	15	177.	896	H
AR	II	2554.1661	2553.4000	20		867		CR	II	2555.84	2555.07	4	318.	340	
N	II	2554.188	2553.422	70	47.	200		CO	I	2555.840	2555.074	6	56.	603	
CU	III	2554.256	2553.490	10		724		CO	II	2555.85	2555.08	30		825	
MN	III	2554.297	2553.531	7		301		MN	II	2555.88	2555.11	5		328	
NA	III	2554.31	2553.55	150		516		MN	II	2555.94	2555.18	5		328	
N	II	2554.387	2553.622		47.	521	P	FE	I	2555.985	2555.219	15		896	
CR	II	2554.39	2553.62	3	108.	340		GA	II	2556.05	2555.28	85		652	
V	II	2554.403	2553.637	3		782		CO	II	2556.10	2555.33	4		825	
V	II	2554.434	2553.668	40	38.	478		CR	I	2556.19	2555.42	6	26.	341	
CU	III	2554.478	2553.712	3		724		FE	II	2556.219	2555.453	15	177.	896	H
NE	VI	2554.5	2553.7	87		885	M	CR	II	2556.24	2555.47	75		340	
FE	II	2554.503	2553.738	20	127.	468	H	CR	I	2556.27	2555.50	10	25.	341	
CR	I	2554.59	2553.82	1		341		F	IV	2556.36	2555.59	0		173	
CO	II	2554.68	2553.91	3		825		FE	I	2556.4132	2555.6466	0	58.	896	
MN	II	2554.742	2553.976	40		328		C	II	2556.43	2555.66	4	30.	287	
CU	III	2554.767	2554.000	8		724		O	III	2556.431	2555.665	1		1032	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AS	II	2556.469	2555.702	3		425		FE	I	2558.0370	2557.2700	12	101.	896	
SC	II	2556.61	2555.84	6	1.	488		CU	III	2558.082	2557.315	25		724	
V	II	2556.671	2555.905	40	69.	478		CO	II	2558.115	2557.348	30	17.	825	
CR	III	2556.722	2555.957	60	57.	893		CR	II	2558.22	2557.45	10	89.	340	
TI	II	2556.753	2555.988	10	9.	488		FE	II	2558.272	2557.505	10	175.	896	H
V	I	2556.782	2556.016	9	14.	1000		MN	II	2558.310	2557.543	220	20.	328	
CR	III	2556.858	2556.093	1		893		CR	I	2558.33	2557.56	4	68.	341	
F	II	2556.877	2556.110	250		538		MN	II	2558.361	2557.594	100	20.	328	
C	II	2556.89	2556.12	1	30.	287		CU	III	2558.423	2557.656	15		724	
FE	III	2556.973	2556.207	60	92.	188		MN	II	2558.477	2557.710	80		328	
CL	III	2557.00	2556.23	100		43		MN	III	2558.569	2557.802	2		301	
NI	II	2557.032	2556.265	3		835		CR	I	2558.59	2557.82	1		341	
GE	I	2557.0647	2556.2979	100	25.	7		CR	III	2558.61J	2557.862	250	57.	893	
FE	I	2557.0700	2556.3032	15	102.	896		MG	I	2558.63	2557.86			708	P
NI	II	2557.123	2556.356	2		835		MN	II	2558.634	2557.876	60		328	
CU	II	2557.1369	2556.3702	2		612		NI	II	2558.635	2557.868	15	47.	835	
CR	I	2557.17	2556.40	2		341		V	IV	2558.664	2557.897	15		829	
V	II	2557.20	2556.43	1		478	P	CL	III	2558.7	2557.9	300		43	
MG	I	2557.32	2556.55			708		F	IV	2558.70	2557.93	10		173	
TI	III	2557.333	2556.567	40	6.	227		ZN	II	2558.713	2557.947	1000	3.	154	
MN	II	2557.340	2556.573	320	20.	328		ZN	IV	2558.725	2557.958	40		314	
AR	II	2557.353	2556.586	40		506		CO	II	2558.727	2557.960	00		825	
NI	II	2557.405	2556.638	15		835		O	III	2558.83	2558.06	150	21.	168	
CO	I	2557.528	2556.762	50	55.	603		AS	II	2558.850	2558.082	2		425	
CO	II	2557.529	2556.762	30		825		MN	II	2558.86	2558.08	20		328	
CO	II	2557.56	2556.79	1		825		FE	III	2558.939	2558.172	10		188	
V	I	2557.581	2556.815	6	14.	1000		CA	I	2558.941	2558.174	1	11.	1018	
FE	I	2557.630	2556.863	40	53.	896		CU	II	2558.9805	2558.2133	4		612	
MN	II	2557.661	2556.894	170	20.	328		CR	II	2559.05	2558.28	3		340	
V	IV	2557.682	2556.915	50		829		MN	II	2559.072	2558.304	100		328	
NE	VI	2557.7	2556.9	115		885	M	CR	II	2559.12	2558.35	4	125.	340	
BR	II	2557.736	2556.970	600		606		ZN	III	2559.23	2558.46	20		162	
CR	II	2557.74	2556.97	7	232.	340		FE	I	2559.245	2558.478	5		896	M
MN	I	2557.806	2557.040	3		148		AR	II	2559.367	2558.600	5		506	
FE	II	2557.845	2557.079	20	158.	488		CA	I	2559.37	2558.60	4	11.	488	
CU	III	2557.896	2557.129	3		724		MN	II	2559.372	2558.605	450	20.	328	H
CR	I	2557.911	2557.144	25	24.	341		N	II	2559.39	2558.62	1	18.0	200	
CA	I	2557.95	2557.18	4	11.	488		CR	II	2559.45	2558.68	4		340	
SI	II	2557.973	2557.206	1	26.	678		FE	I	2559.589	2558.822	5		896	M
MG	I	2557.993	2557.226	1		1017		NI	II	2559.598	2558.830	0		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2559.630	2558.863	100		328		FE	II	2561.049	2560.281	40	221.	896	H
V	I	2559.660	2558.893	15	15.	1000		CO	II	2561.05	2560.28	8		825	
AS	II	2559.663	2558.895	2		425		CR	I	2561.05	2560.28	4		341	
MN	II	2559.70	2558.93	20		328		FE	II	2561.210	2560.443	0	158.	488	H
CR	I	2559.78	2559.01	1		341		CU	III	2561.228	2560.460	10		724	
N	II	2559.79	2559.02		18.0	521	P	MN	II	2561.24	2560.47	2		328	
V	II	2559.855	2559.088	2		478		MG	I	2561.30	2560.53			708	P
FE	II	2559.896	2559.129	M		645		NE	II	2561.309	2560.541	20		563	
CO	II	2559.90	2559.13	4		825		FE	I	2561.3242	2560.5565	20	56.	896	
NI	II	2559.902	2559.135	8		835		CO	II	2561.43	2560.66	15		825	
SI	III	2559.978	2559.210	315	55.	768		CR	I	2561.464	2560.695	30	24.	341	
FE	II	2560.003	2559.237	40	266.	488		MN	II	2561.53	2560.76	80		328	
FE	II	2560.038	2559.270	15		896		AR	II	2561.621	2560.853	10		506	
AR	II	2560.049	2559.281	30		506		CR	I	2561.63	2560.86	2		341	
MN	II	2560.05	2559.27	10		328		MG	I	2561.709	2560.941	1		1017	
CO	II	2560.176	2559.408	40	15.	825		MN	II	2561.749	2560.961	30		328	
MN	II	2560.182	2559.413	170	20.	328		CR	II	2561.76	2560.99	20	233.	340	
CU	II	2560.1979	2559.4304	2		612		CO	II	2561.79	2561.02	M		825	
CL	III	2560.27	2559.50	300		43		AS	II	2561.872	2561.105	170		425	
AS	II	2560.315	2559.548	15		425		HE	I	2562.	2561.	12		126	
CO	I	2560.362	2559.595	0		603		CU	III	2562.019	2561.251	15		724	
CO	II	2560.42	2559.65	10		825		FE	I	2562.0392	2561.2713	8	58.	896	
MN	II	2560.447	2559.679	100	20.	328		MN	II	2562.04	2561.27	40		328	
CR	II	2560.48	2559.71	50	317.	340		CO	I	2562.048	2561.280	25	M	603	
MN	II	2560.509	2559.741	80	20.	328		CO	II	2562.048	2561.280			825	
CR	II	2560.53	2559.76	15	126.	340		CR	I	2562.10	2561.33	5	25.	341	
FE	II	2560.541	2559.774	110	205.	488		CR	I	2562.15	2561.38	4	83.	341	
CU	II	2560.560	2559.793	1		612	H	MN	II	2562.180	2561.412	5		328	
V	I	2560.58	2559.81	2		489		NI	I	2562.191	2561.424	5	3.	488	
NI	II	2560.690	2559.922	5		835		MN	II	2562.310	2561.542	40		328	
FE	II	2560.692	2559.924	12	267.	896		N	II	2562.313	2561.545	5	46.	200	
CO	I	2560.794	2560.027	1		603		CR	III	2562.35	2561.59	10		490	
CO	II	2560.800	2560.031	40		825		FE	II	2562.351	2561.584	5	205.	488	
CO	II	2560.86	2560.09	M		825		CR	II	2562.36	2561.59	7	71.	340	
MN	II	2560.87	2560.10	3		328		V	II	2562.42	2561.65	2		478	
V	II	2560.916	2560.149	4	68.	478		NE	I	2562.468	2561.700	10		896	M
NI	II	2560.924	2560.156	120	62.	835		CU	III	2562.505	2561.737	5		724	
MN	II	2560.94	2560.17	10		328		NE	II	2562.569	2561.801	70		563	
N	II	2561.011	2560.243	40	46.	200		CR	II	2562.58	2561.81	15	317.	340	
SC	II	2561.03	2560.26	9	1.	488		N	II	2562.585	2561.818		46.	521	P

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
MN	II	2562.61	2561.84	10		328		CU	I	2564.321	2563.553	3		672	
FE	I	2562.6231	2561.8551	12	55.	896		AS	II	2564.331	2563.563	2		425	
N	II	2562.711	2561.943	20	46.	200		CR	II	2564.35	2563.58	50	89.	340	
AR	II	2562.722	2561.954	10		506		MN	II	2564.411	2563.642	450	20.	328	
NE	II	2562.830	2562.062	70		563		CR	I	2564.43	2563.67	2		341	
AR	II	2562.8547	2562.0866	140		867		SI	I	2564.4473	2563.6787	30	44.	608	
FE	II	2562.860	2562.092	25	221.	896	H	CO	II	2564.50	2563.73	10		825	
CO	II	2562.88	2562.11	2		825		FE	I	2564.5773	2563.8087	8	55.	896	
NE	II	2562.891	2562.123	80		563		N	II	2564.580	2563.812		46.	521	P
CO	I	2562.892	2562.124	10	3.	603		FE	II	2564.602	2563.834	70	266.	488	
V	I	2562.893	2562.125	60	15.	1000		MN	II	2564.612	2563.843	40		328	
O	VIII	2562.9	2562.1			309		N	II	2564.708	2563.940		46.	521	P
CU	III	2562.951	2562.193	5		724		CU	I	2564.723	2563.955	3.		672	
FE	I	2562.9898	2562.2216	20	55.	896		CO	II	2564.807	2564.038	10	15.	825	
FE	I	2562.993	2562.225	20	55.	896		CA	I	2564.86	2564.09	6	11.	488	
MG	I	2563.027	2562.259	2		1017		MN	II	2564.885	2564.116	80		328	
MN	II	2563.033	2562.265	80		328		CL	II	2564.895	2564.127	81		613	
LI	I	2563.079	2562.312	40	2.	488		CU	III	2564.944	2564.176	10		724	
NI	II	2563.124	2562.356	5		835		V	I	2564.996	2564.228	20	100.	1000	
CR	II	2563.14	2562.37	25	317.	340		CU	III	2565.015	2564.247	8		724	
F	III	2563.193	2562.425	300		537		CR	II	2565.04	2564.27	3		340	
MN	II	2563.251	2562.483	140		328		CO	II	2565.06	2564.29	15		825	
CO	II	2563.28	2562.51	3		825		V	I	2565.116	2564.348	4		1000	
CL	III	2563.29	2562.52	100	21.	30		MN	II	2565.15	2564.38	1		328	
FE	II	2563.304	2562.535	200	64.	896	H	AR	II	2565.1852	2564.4165	70		867	
V	II	2563.528	2562.760	30	102.	478		NE	II	2565.192	2564.423	10		563	
N	II	2563.62	2562.85		18.0	521	P	MN	II	2565.22	2564.45	40		328	
MN	II	2563.89	2563.12	20		328		ZN	II	2565.224	2564.456	30		154	
CU	I	2563.935	2563.167	10	43.	672		CR	I	2565.24	2564.47	7	68.	341	
SC	II	2564.00	2563.23	8	1.	488		TI	II	2565.26	2564.49	1		601	
MN	II	2564.019	2563.251	40		328		FE	I	2565.3285	2564.5598	12	58.	896	
V	III	2564.05	2563.28	40	13.	791		CO	I	2565.334	2564.566	0		603	
N	II	2564.087	2563.319	40	46.	200		CO	II	2565.340	2564.571	15		825	
NA	III	2564.09	2563.32	150		516		CR	I	2565.42	2564.65	6		341	
CR	II	2564.12	2563.35	40	232.	340		CU	II	2565.4948	2564.7260	4		612	
FE	I	2564.168	2563.399	15		096	M	CR	II	2565.53	2564.76	7		340	
TI	III	2564.204	2563.436	920	6.	227		CR	III	2565.541	2564.773	500		893	
FE	II	2564.245	2563.477	140	64.	896	H	V	I	2565.585	2564.817	40	100.	1000	
CO	II	2564.26	2563.49	1		825		SI	I	2565.5930	2564.8242	20	44.	608	
N	II	2564.307	2563.539		46.	521	P	CL	II	2565.612	2564.844	220	8.	613	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
AS	II	2565.872	2564.903	50		425		NI	II	2567.010	2566.241	5		835	
CL	II	2565.704	2564.935	13		613		CU	III	2567.140	2566.371	290		724	
MG	I	2565.706	2564.937	2		1017		FE	II	2567.171	2566.401	10	405.	896	
V	III	2565.81	2565.04	20		325		CR	I	2567.18	2566.41	1	26.	341	
CU	II	2565.8151	2565.0463	2		612		MG	I	2567.28	2566.51			708	P
CA	I	2565.893	2565.124	2	11.	1018		CR	II	2567.29	2566.52	8	89.	340	
CU	III	2565.957	2565.188	3		724		N	VII	2567.3	2566.6			309	
MG	I	2565.96	2565.19			708	P	CR	I	2567.32	2566.55	12	24.	341	
NI	II	2565.979	2565.210	15	64.	835		O	III	2567.325	2566.556	0		1032	
CR	I	2565.98	2565.21	3	53.	341		SE	III	2567.37	2566.60	30		587	
MN	II	2565.988	2565.219	170	20.	328		V	II	2567.370	2566.602	15	193.	478	
V	II	2566.01	2565.24	3		478		FE	II	2567.392	2566.623	70	174.	488	
SE	III	2566.02	2565.25	1		587		MN	I	2567.552	2566.783	2		148	
CL	II	2566.057	2565.289	160		613		CR	II	2567.62	2566.85	10	305.	340	
FE	II	2566.074	2565.306	1	419.	488		NI	II	2567.625	2566.856	1		835	
CO	II	2566.140	2565.371	25	17.	825		FE	II	2567.682	2566.912	60	64.	896	H
TI	III	2566.192	2565.423	850	6.	227		AS	II	2567.753	2566.984	5		425	
CR	I	2566.28	2565.51	5		341		CU	III	2567.823	2567.054	50		724	
SI	V	2566.30	2565.53	50		941		AR	II	2567.864	2567.095	10		506	
V	II	2566.312	2565.543	15	103.	478		NI	II	2567.889	2567.120	3		835	
CR	II	2566.36	2565.59	1		340		NE	II	2567.890	2567.121	90		563	
CO	II	2566.38	2565.61	4		825		FE	II	2568.095	2567.326	1	419.	488	
MN	II	2566.480	2565.711	30		328		CU	I	2568.099	2567.330	2		672	
V	II	2566.512	2565.743	2		478		CR	II	2568.11	2567.34	10	107.	340	
AR	II	2566.5540	2565.7850	30		867		CO	I	2568.113	2567.344	50	3.	603	
NE	II	2566.627	2565.858	70		563		CO	II	2568.12	2567.34	2		825	
NI	II	2566.692	2565.923	220	62.	835		NE	II	2568.152	2567.383	70		563	
MN	I	2566.721	2565.952	4		148		MN	I	2568.17	2567.40	1		148	
CO	I	2566.754	2565.985	1		603		V	II	2568.22	2567.45	15		478	
FE	XII	2566.76	2565.99	78		940	FH	CR	II	2568.27	2567.50	5	331.	340	
CR	I	2566.77	2566.00	10	83.	341		TI	III	2568.325	2567.556	775	6.	227	
CL	II	2566.775	2566.006	54	8.	613		CR	II	2568.36	2567.59	8	305.	340	
V	II	2566.802	2566.033	7	37.	478		FE	II	2568.401	2567.631	10		896	
MN	II	2566.804	2566.035	80	20.	328		AR	II	2568.496	2567.727	10		506	
CU	III	2566.813	2566.044	10		724		CO	I	2568.511	2567.742	1		603	
NI	II	2566.866	2566.097	5		835		ZN	II	2568.564	2567.795	50		154	
CU	III	2566.912	2566.143	1		724		CR	II	2568.57	2567.80	4		340	
CR	II	2566.94	2566.17	8	317.	340		ZN	I	2568.57	2567.80	12	8.	486	
FE	II	2566.989	2566.220	20	404.	896		MN	II	2568.58	2567.81	10		328	
MN	I	2566.999	2566.230	1		148		FE	I	2568.6284	2567.8589	8	130.	896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
ZN	II	2568.744	2567.975	50		154		CR	II	2570.17	2569.40	15	331.	340	
AL	I	2568.753	2567.983	160	2.	198		CU	III	2570.300	2569.530	20		724	
V	II	2568.834	2568.065	3	102.	478		O	III	2570.38	2569.59	1		1032	
MN	III	2568.838	2568.068	5		301		FE	I	2570.366	2569.596	25	52.	896	
CR	II	2568.84	2568.07	3	331.	340		CU	III	2570.493	2569.723	5		724	
CR	I	2568.868	2568.098	12	22.	341		FE	I	2570.5137	2569.7437	15	55.	896	
CL	II	2568.892	2568.122	67		613		CO	II	2570.523	2569.753	10		825	
NI	II	2568.906	2568.136	3		835		FE	II	2570.545	2569.775	70	266.	488	
MN	II	2569.00	2568.23	20		328		FE	II	2570.549	2569.779	8	349.	896	H
CL	II	2569.025	2568.256	53		613		V	IV	2570.582	2569.812	10		829	
CR	I	2569.06	2568.29	3		341		CR	II	2570.60	2569.83	5		340	
MN	II	2569.079	2568.309	50		328		ZN	I	2570.641	2569.871	16		830	
V	II	2569.08	2568.31	3		478		CU	I	2570.658	2569.888	10	43.	672	
V	I	2569.145	2568.376	30		1000		CR	I	2570.66	2569.89	2		341	
FE	II	2569.178	2568.409	12	145.	896	H	CU	III	2570.678	2569.908	5		724	
CR	II	2569.28	2568.51	20	317.	340		AS	II	2570.685	2569.915	0		425	
MN	II	2569.285	2568.515	100	67.	328		AR	II	2570.754	2569.984	30		506	
CR	I	2569.29	2568.52	8	25.	341		MN	II	2570.861	2570.091	50		328	
SI	I	2569.4103	2568.6407	85	85.	608		CU	III	2570.909	2570.139	1		724	
CR	I	2569.43	2568.66	5	23.	341		CR	I	2570.94	2570.17	1	67.	341	
NI	II	2569.440	2568.670	3		835		F	III	2571.00	2570.23	80		537	
MN	II	2569.495	2568.725	80		328		CU	III	2571.036	2570.266	3		724	
CU	III	2569.512	2568.742	8		724		V	I	2571.038	2570.268	4		1000	
NI	II	2569.563	2568.793	1		835		V	III	2571.14	2570.37	5		325	
CR	II	2569.63	2568.86	4	317.	340		AR	II	2571.1809	2570.4108	80		867	
FE	I	2569.634	2568.865	12	54.	896		FE	II	2571.296	2570.525	25	412.	896	
FE	II	2569.648	2568.879	40	175.	488		C	II	2571.34	2570.57	10		287	
CR	III	2569.649	2568.880	200		893		MN	II	2571.34	2570.57	15		328	
CU	II	2569.676	2568.906	2		612		ZN	II	2571.422	2570.652	30	7.	154	
NA	VI	2569.7	2568.9			108	F	CR	II	2571.47	2570.70	7	107.	340	
TI	II	2569.75	2568.98	1		601		V	IV	2571.494	2570.724	80		829	
CU	III	2569.835	2569.065	15		724		CO	I	2571.532	2570.762	1		603	
O	III	2569.88	2569.11	4		168		CU	I	2571.569	2570.800	10	42.	672	
CU	III	2569.917	2569.147	10		724		FE	II	2571.618	2570.848	30	284.	896	H
MG	I	2569.97	2569.20			708	P	MG	I	2571.678	2570.908	1		1017	
AR	II	2569.972	2569.202	40		506		MN	II	2571.693	2570.923	50		328	
NE	VI	2570.0	2569.2	478		885	M	F	III	2571.711	2570.941	300		537	
MN	II	2570.095	2569.325	50		328		MN	II	2571.724	2570.954	80		328	
CO	III	2570.12	2569.35	2		673		CU	III	2571.742	2570.972	140		724	
CU	III	2570.128	2569.358	3		724		TI	II	2571.806	2571.036	20	9.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2571.829	2571.059	50	102.	478		AS	II	2573.957	2573.186	170		425	
CL	II	2571.866	2571.096	130		613		V	II	2573.97	2573.20	4		478	
CR	I	2571.87	2571.10	4	25.	341		FE	II	2573.981	2573.211	10	205.	896	H
CR	II	2571.87	2571.10	3	317.	340		CR	II	2574.09	2573.32	4	71.	340	
MN	II	2571.89	2571.12	20		328		CU	III	2574.100	2573.329	290		724	
MN	III	2572.038	2571.268	2		301		CO	I	2574.165	2573.395	40		603	
ZN	III	2572.05	2571.28	20		162		CO	I	2574.308	2573.538	30		603	
SE	III	2572.07	2571.30	120		587		CR	II	2574.31	2573.54	50	232.	340	
NE	II	2572.212	2571.442	40		563		F	III	2574.391	2573.620	300		537	
NE	II	2572.234	2571.464	50		563		BR	IV	2574.45	2573.68	100		574	
O	II	2572.246	2571.476	40	22.	488		TI	II	2574.49	2573.72	0	9.	488	
FE	II	2572.312	2571.542	20	174.	488	H	FE	II	2574.525	2573.754	5	284.	488	
FE	I	2572.34	2571.57	3	103.	605		GE	II	2574.556	2573.785	5		676	
CR	I	2572.51	2571.74	30	24.	341		TI	II	2574.68	2573.91	M		601	
CU	II	2572.5259	2571.7555	100	131.	612		AR	II	2574.711	2573.940	5		506	
C	II	2572.53	2571.76	4	57.	287		CO	II	2574.72	2573.95	M		825	
CR	II	2572.55	2571.78	50	89.	340		V	I	2574.791	2574.020	50	15.	1000	
CU	III	2572.591	2571.820	2		724		CL	III	2574.90	2574.13	0		43	
MN	II	2572.662	2571.892	100	67.	328		NE	II	2574.903	2574.132	70		563	
MN	II	2572.795	2572.023	20		328		F	II	2574.943	2574.172	40		538	
CR	I	2572.84	2572.07	5	22.	341		MN	II	2574.949	2574.178	60		328	
V	II	2572.866	2572.096	2	37.	478		CR	II	2574.95	2574.18	7	89.	340	
CR	II	2572.88	2572.11	15	217.	340		MN	III	2575.05	2574.28	2		301	
CR	I	2572.92	2572.15	12	22.	341		CR	II	2575.12	2574.35	2		340	
NI	II	2572.977	2572.207	2		835		CO	I	2575.121	2574.351	6	3.	603	
CO	I	2573.004	2572.234	50		603		FE	II	2575.133	2574.362	125	144.	896	H
MG	I	2573.018	2572.248	2		1017		CU	II	2575.1838	2574.4128	2		612	
MN	II	2573.12	2572.32	10		328		MN	II	2575.24	2574.47	2		328	
CR	II	2573.17	2572.40	12	317.	340		V	II	2575.291	2574.520	60	38.	478	
MN	II	2573.200	2572.430	60		328		NE	I	2575.32	2574.55	8		723	
NI	II	2573.265	2572.495	3		835		CU	II	2575.4085	2574.6375	4		612	
O	III	2573.27	2572.50	1		1032		MN	II	2575.446	2574.675	20		328	
TI	II	2573.418	2572.648	5		488		CR	I	2575.45	2574.68	10	67.	341	
FE	V	2573.42	2572.65	229		229	F N	CO	II	2575.51	2574.74	2		825	
V	II	2573.48	2572.71	4		478		CU	III	2575.594	2574.823	2		724	
CU	III	2573.518	2572.747	10		724		C	II	2575.597	2574.826	250	24.	287	
FE	I	2573.5240	2572.7533	15	102.	896		FE	III	2575.608	2574.838	120	80.	188	
MN	I	2573.526	2572.755	50	12.	148		CO	II	2575.633	2574.862	40	17.	825	
NE	II	2573.671	2572.900	70		563		V	I	2575.637	2574.866	3		1000	
FE	II	2573.738	2572.967	12	190.	896		MG	I	2575.716	2574.945	3		1017	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CU	III	2575.769	2574.998	30		724		CU	II	2577.753	2576.982	2		612	
NI	II	2575.775	2575.004	10		835		CR	I	2577.76	2576.99	2		341	
AL	I	2575.866	2575.095	160	2.	198		CU	I	2577.89	2577.12	2		672	
CR	I	2575.88	2575.11	2		341		V	V	2577.899	2577.130	200		929	
CO	II	2575.89	2575.12	3		825		CL	III	2577.90	2577.13	500	18.	43	
CU	III	2575.890	2575.119	35		724		SI	I	2577.9229	2577.1514	45	84.	608	
CU	III	2575.937	2575.166	1		724		F	III	2577.979	2577.207	150		537	
CR	II	2576.01	2575.24	4		340		O	III	2577.980	2577.211	1		1032	
O	II	2576.071	2575.300	90	22.	488		V	I	2578.063	2577.292	20	15.	1000	
ZN	III	2576.13	2575.36	200		162		CR	II	2578.11	2577.34	5		340	
AL	I	2576.170	2575.397	15	2.	198		MN	III	2578.11	2577.34	1		301	
CO	II	2576.237	2575.466	1		825		FE	II	2578.200	2577.431	5	175.	488	
CR	II	2576.24	2575.47	3	218.	340		CO	I	2578.217	2577.446	1		603	
MN	I	2576.280	2575.509	20	12.	148		MN	I	2578.241	2577.470	6		148	
CR	I	2576.37	2575.60	2		341		CR	II	2578.25	2577.48	4	125.	340	
CO	I	2576.503	2575.733	2		603		V	II	2578.299	2577.528	3		478	
FE	I	2576.514	2575.742	50		896		CU	III	2578.366	2577.594	1		724	
ZN	III	2576.56	2575.79	500		162		HE	I	2578.4	2577.6	120		126	
FE	III	2576.569	2575.798	10		188		CR	I	2578.43	2577.66	20	24.	341	
CR	II	2576.58	2575.81	20	231.	340		V	II	2578.453	2577.682	40	68.	478	
CR	I	2576.66	2575.89	8	23.	341		CO	II	2578.50	2577.73	M		825	
CU	II	2576.6734	2575.9021	2		612		CR	III	2578.506	2577.737	400	57.	893	
CU	III	2576.794	2576.023	15		724		NI	III	2578.509	2577.742	25		661	
CO	II	2576.85	2576.08	00		825		CR	II	2578.51	2577.74	10	317.	340	
MN	II	2576.877	2576.105	1000	1.	328	H	CU	III	2578.537	2577.765	35		724	
O	III	2576.917	2576.148	4		1032		MN	II	2578.599	2577.827	50	67.	328	
AS	II	2576.9293	2576.1579	50		425		MG	I	2578.660	2577.888	1		1017	
MN	II	2576.956	2576.183	80		328		CO	II	2578.69	2577.92	1		825	
BR	II	2576.983	2576.214	100		606		FE	II	2578.691	2577.919	60	64.	896	H
NI	II	2577.019	2576.247	2		835		NE	II	2578.715	2577.943	20		563	
CR	II	2577.22	2576.45	2	331.	340		MN	II	2578.723	2577.951	20		328	
CU	III	2577.225	2576.454	3		724		CR	III	2578.73	2577.96	40		490	
TI	III	2577.241	2576.470	360	6.	227		NE	II	2578.735	2577.963	30		563	
V	II	2577.249	2576.478	20	101.	478		CR	II	2578.75	2577.97	5	89.	340	
MG	I	2577.314	2576.545			708	P	FE	I	2578.774	2578.003	15		896	M
CU	III	2577.353	2576.581	5		724		MN	II	2578.892	2578.120	5	67.	328	
MN	II	2577.452	2576.680	20		328		O	III	2578.94	2578.18	0		168	
FE	I	2577.4623	2576.6907	170	52.	896		FE	I	2578.981	2578.209	10		896	P
CU	III	2577.496	2576.724	30		724		CU	III	2578.984	2578.212	140		724	M
FE	II	2577.633	2576.861	25	326.	896	H	CL	III	2579.03	2578.26	600	9.	43	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	I	2579.04	2578.27	10	67.	341		CR	I	2580.67	2579.90	4	22.	341	
MN	II	2579.050	2578.278	30	89.	328		F	III	2580.672	2579.900	300		537	
CR	II	2579.09	2578.31	40	89.	340		CR	I	2580.81	2580.04	7	26.	341	
MN	I	2579.130	2578.358	2		148		F	III	2580.810	2580.038	450		537	
V	II	2579.223	2578.451	8	102.	478		FE	I	2580.8376	2580.0652	8	54.	896	
NI	I	2579.235	2578.465	5	28.	488		CU	III	2580.908	2580.135	120		724	
GE	II	2579.257	2578.485	0		676		MN	I	2580.952	2580.180	3		148	
MN	I	2579.319	2578.548	2		148		FE	I	2581.053	2580.281	0		378	
CR	III	2579.340	2578.570	10	65.	893		FE	I	2581.0665	2580.2941	8		896	
BR	II	2579.43	2578.66	50		606		CO	II	2581.095	2580.323	100	14.	825	H
MN	I	2579.486	2578.695	2		148		MN	II	2581.108	2580.335	2		328	
CR	II	2579.47	2578.70	7		340		CR	II	2581.12	2580.35	4		340	
FE	III	2579.54	2578.77	216		940	FH	AR	II	2581.132	2580.360	10		506	
ZN	III	2579.55	2578.78	10		162		CL	II	2581.17	2580.40	8		345	
NI	II	2579.577	2578.805	1		835		FE	I	2581.2254	2580.4530	12	54.	896	
MN	II	2579.583	2578.811	140	89.	328		TI	III	2581.228	2580.456	360	6.	227	
FE	I	2579.595	2578.825	3		605	N	CR	I	2581.25	2580.48	2	26.	341	
TI	I	2579.68	2578.91	20	7.	488		GE	II	2581.263	2580.491	5		676	
CO	I	2579.696	2578.924	30		603		FE	I	2581.333	2580.561	1		378	
FE	II	2579.755	2578.985	5	265.	488		CU	I	2581.34	2580.57	5		672	
FE	II	2579.887	2579.115	15		896		MG	I	2581.359	2580.587	2		1017	
CR	II	2579.89	2579.12	15	262.	340		NI	II	2581.395	2580.622	5		835	
CR	I	2579.91	2579.14	12	22.	341		CL	III	2581.44	2580.67	600	18.	43	
CU	III	2579.947	2581.173	120		724		FE	II	2581.487	2580.717	1	327.	488	H
MN	I	2579.95	2579.18	1		148		CR	II	2581.50	2580.72	10		340	
FE	I	2580.0320	2579.2599	40	55.	896		O	III	2581.507	2580.737	0		1032	
FE	I	2580.038	2579.266	4	53.	605		TI	I	2581.579	2580.809	50		488	N
CU	I	2580.06	2579.29	20	54.	672		CO	I	2581.610	2580.838	50		603	
CR	II	2580.07	2579.30	1		340		CR	II	2581.65	2580.88	1	107.	340	
FE	II	2580.176	2579.406	40	266.	488		FE	I	2581.712	2580.939	1	55.	378	
NE	II	2580.177	2579.405	50		563		CO	II	2581.73	2580.96	4		825	
FE	II	2580.185	2579.413	8	239.	896	H	SE	III	2581.74	2580.97	10		587	
MN	II	2580.193	2579.420	100		328		FE	II	2581.882	2581.110	8	190.	896	
AR	II	2580.200	2579.428	20		506		CR	II	2581.90	2581.13	1		340	
F	III	2580.269	2579.497	30		537		MN	I	2581.955	2581.183	2		148	
CR	II	2580.40	2579.63	7		340		BR	IV	2581.96	2581.19	500		574	
MN	I	2580.440	2579.670	15		488	N	CO	II	2581.99	2581.22	5		825	
CR	I	2580.54	2579.77	4	22.	341		FE	I	2582.237	2581.464	8		896	M
FE	I	2580.616	2579.844	12		896	M	MN	I	2582.250	2581.478	3		148	
CR	II	2580.65	2579.88	4	218.	340		MN	II	2582.428	2581.655	60		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
TI	II	2582.50	2581.73	1		601		FE	II	2584.114	2583.343	1	266.	488	
FE	I	2582.569	2581.796	50		896	M	AR	III	2584.16	2583.39	30		79	
CR	II	2582.57	2581.80	5		340		NI	II	2584.174	2583.401	20		835	
V	II	2582.611	2581.839	4	101.	478		CO	II	2584.22	2583.45	2		825	
AS	II	2582.703	2581.931	5		425		GE	II	2584.283	2583.510	0		676	
CO	II	2582.74	2581.97	3		825		MN	II	2584.311	2583.538	60		328	
P	IV	2582.865	2582.092	60		937		V	II	2584.35	2583.58	2		478	
CR	II	2582.87	2582.10	20	231.	340		CR	II	2584.38	2583.61	12	89.	340	
ZN	III	2582.91	2582.14	30		162		FE	III	2584.511	2583.739	25	137.	168	
MN	II	2582.990	2582.216	5		328		MN	II	2584.560	2583.787	2		328	
CO	II	2583.001	2582.228	500	14.	825		F	III	2584.578	2583.805	520		537	
CO	II	2583.012	2582.239	500	14.	825		CU	III	2584.655	2583.882	1		724	
CU	NI	2583.027	2582.264	5		724		NI	II	2584.771	2583.998	140	48.	835	
CR	II	2583.04	2582.27	15	231.	340		CU	III	2584.774	2584.001	15		724	
MN	I	2583.042	2582.270	5		148		FE	III	2584.811	2584.038	90	137.	168	
FE	I	2583.068	2582.297	6		605	N	MN	I	2584.873	2584.100	10	12.	148	
NI	II	2583.099	2582.326	0		835		CR	II	2584.88	2584.10	50	89.	340	
FE	III	2583.14	2582.37	150	80.	188		MG	I	2584.989	2584.216	2		1017	
MN	II	2583.165	2582.395	20		328		MN	I	2585.075	2584.302	100	12.	148	
FE	II	2583.186	2582.413	8	310.	896		NI	II	2585.088	2584.314	50		835	
ZN	I	2583.212	2582.440	14	7.	830		MN	II	2585.283	2584.510	100		328	
CU	III	2583.251	2582.478	2		724		CR	III	2585.309	2584.538	570	57.	893	
ZN	I	2583.259	2582.487	2	7.	830		FE	I	2585.3098	2584.5363	380	52.	896	
CO	II	2583.29	2582.52	3		825		MN	I	2585.313	2584.540	2		148	
FE	II	2583.353	2582.580	100	64.	896	H	V	IV	2585.409	2584.636	40		829	
NI	II	2583.524	2582.751	10		835		CR	I	2585.44	2584.67	10	23.	341	
CR	II	2583.53	2582.76	7		340		CR	II	2585.60	2584.83	10		340	
CL	II	2583.582	2582.809	15		613		CU	III	2585.662	2584.888	5		724	
C	I	2583.674	2582.901	E	60.	821		CR	III	2585.716	2584.944	90		893	
CR	II	2583.68	2582.91	5	218.	340		V	II	2585.724	2584.951	80	102.	478	
MN	II	2583.745	2582.972	100		328		CU	III	2585.785	2585.012	3		724	
V	II	2583.780	2583.007	20	68.	478		MN	II	2585.904	2585.130	60	89.	328	
CR	I	2583.79	2583.02	8	67.	341		CO	II	2585.96	2585.18	2		825	
CO	I	2583.81	2583.03	3		603		CO	I	2586.108	2585.335	50	113.	603	
FE	II	2583.818	2583.047	20	174.	488		CU	III	2586.167	2585.393	1		724	
O	III	2583.911	2583.139	4		1032		MN	II	2586.217	2585.444	100	89.	328	
MN	II	2583.941	2583.168	20		328		MG	I	2586.332	2585.558	3		1017	
CO	II	2583.942	2583.169	20		825		CR	II	2586.36	2585.60	15		340	
TI	I	2583.995	2583.224	20	7.	488		FE	II	2586.401	2585.629	110	326.	488	
MN	I	2584.047	2583.275	7		148		FE	II	2586.53	2585.76		239.	488	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CU	III	2586.584	2589.159	10	724		CU	III	2588.194	2587.420	140	724	
CO	II	2586.636	2585.862	00	825		CR	I	2588.27	2587.50	3	341	
V	II	2586.64	2585.87	10	478		MN	II	2588.279	2587.505	50	328	
FE	II	2586.648	2585.876	750	488	H	CO	II	2588.288	2587.514	3	825	
CR	II	2586.66	2585.89	2	340		MN	II	2588.372	2587.598	100	328	
MN	II	2586.684	2585.890	100	328	89.	NI	II	2588.372	2587.598	10	835	
ZN	III	2586.85	2586.08	80	162		MN	II	2588.54	2587.76	10	328	
NI	II	2586.880	2586.106	1	835		MN	II	2588.59	2587.81	1	328	
MN	II	2586.91	2586.13	10	328		CR	I	2588.65	2587.88	2	341	67.
V	I	2587.016	2586.242	5	1000		CR	II	2588.65	2587.92	4	340	
TI	I	2587.03	2586.26	30	488	7.	NE	II	2588.660	2587.886	40	563	
NI	II	2587.059	2586.285	2	835		FE	II	2588.718	2587.945	220	488	H
NA	II	2587.085	2586.313	10	693		NE	II	2588.754	2587.960	50	563	
CU	III	2587.143	2586.369	75	724		FE	I	2588.783	2588.010	8	605	N
CO	II	2587.24	2586.47	1	825		CR	III	2588.840	2588.067	300	893	
FE	I	2587.330	2586.557	1	605	171.	CU	III	2588.843	2588.068	10	724	
MN	II	2587.335	2586.561	60	328		MN	II	2588.855	2588.080	40	328	
CU	III	2587.363	2586.589	5	724		V	II	2588.902	2588.128	3	478	200.
F	III	2587.427	2586.653	12	537		CU	III	2588.933	2588.159	10	724	
CR	II	2587.46	2586.69	4	340		FE	II	2588.955	2588.182	40	488	145.
CO	II	2587.472	2586.698	M	825		CR	I	2588.96	2588.19	12	341	22.
NI	II	2587.572	2586.798	10	835		MN	II	2588.962	2588.187	5	328	
CO	II	2587.59	2586.80	3	825		O	III	2589.00	2588.23	1	168	
MN	II	2587.65	2586.88	12	328		CR	II	2589.02	2588.25	12	340	89.
CO	II	2587.650	2586.876	00	825		MG	I	2589.059	2588.285	5	1017	
SC	IV	2587.705	2586.933	550	720		NI	II	2589.085	2588.310	20	835	46.
CO	II	2587.72	2586.95	3	825		V	II	2589.25	2588.48	3	478	
CR	II	2587.75	2586.98	3	340		CU	III	2589.368	2588.594	10	724	
CO	II	2587.850	2587.072	M	825		AS	II	2589.449	2588.675	10	425	
MN	I	2587.873	2587.100	1	148		FE	II	2589.559	2588.786	40	488	265.
CA	III	2587.927	2587.153	270	64	9.	V	II	2589.563	2588.789	3	478	
SE	III	2587.96	2587.19	1	587		CL	III	2589.57	2588.80	300	43	
SI	V	2587.97	2587.20	80	941		FE	I	2589.673	2588.898	0	378	
CO	II	2587.991	2587.217	100	825	H	CO	II	2589.692	2588.917	0	825	
V	IV	2588.032	2587.258	10	829		MN	II	2589.746	2588.972	170	328	
NI	II	2588.063	2587.289	8	835	17.	CO	II	2589.81	2589.03	1	825	
MN	II	2588.07	2587.30	80	328		CR	II	2589.82	2589.05	15	340	301.
S	VI	2588.12	2587.35	100	52		F	III	2589.847	2589.072	30	537	
V	II	2588.14	2587.37	5	478		GE	I	2589.9623	2589.1878	120	7	2.
CR	II	2588.19	2587.42	35	340		CO	I	2590.07	2589.30	00	603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
MN	II	2590.20	2589.42	10		328		AS	II	2591.797	2591.022	4		425	
CR	II	2590.21	2589.44	1		340		V	II	2591.87	2591.10	3		478	
NE	I	2590.25	2589.48	2		723		CU	III	2591.877	2591.105	3		724	
CU	III	2590.347	2589.573	10		724		NE	I	2591.92	2591.15	3		723	
NI	II	2590.359	2589.584	18		835		CR	I	2591.93	2591.16	2		341	
CR	II	2590.47	2589.70	30	124.	340		ZN	III	2591.93	2591.16	50		162	
MN	II	2590.500	2589.727	220	54.	328		NI	II	2591.968	2591.193	1		835	
MN	II	2590.59	2589.82	20	89.	328		MN	II	2592.018	2591.243	60		328	
TI	III	2590.73	2589.96	25		227		FE	I	2592.025	2591.252	3		605	N
MN	II	2590.767	2589.992	60	89.	328		NI	II	2592.034	2591.259	15		835	
NE	III	2590.8	2590.0	154	11.	885		C	II	2592.185	2591.410	10	36.	287	
AS	II	2590.815	2590.040	10		425		CU	II	2592.1934	2591.4183	2		612	
FE	III	2590.817	2590.043	25		188		MN	II	2592.203	2591.429	100	36.	328	
CR	I	2590.84	2590.07	5	23.	341		N	V	2592.22	2591.44	4	55.	313	
MN	II	2590.925	2590.150	140		328		FE	II	2592.316	2591.542	450	64.	488	H
V	II	2590.94	2590.17	4		478		CO	II	2592.37	2591.60	1		825	
GE	II	2590.996	2590.221	10		676		CO	I	2592.460	2591.686	10	55.	603	
TI	I	2591.038	2590.265	50	7.	488		AR	II	2592.471	2591.696	10		506	
MN	II	2591.074	2590.299	50	89.	328		CR	III	2592.543	2591.769	300		893	
CR	I	2591.14	2590.37	2	22.	341		MN	II	2592.608	2591.833	5		328	
CR	II	2591.14	2590.37	20		340		CR	I	2592.61	2591.84	50	24.	341	
ZN	III	2591.16	2590.39	80		162		C	II	2592.620	2591.845	40	36.	287	
CU	II	2591.1764	2590.4016	1		612		CU	III	2592.640	2591.864	5		724	
CA	III	2591.186	2590.411	230		64		MG	I	2592.666	2591.891	1		1017	
AS	II	2591.207	2590.432	10		425		MN	II	2592.818	2592.043	20		328	
CU	II	2591.3035	2590.5287	150	130.	612		AR	II	2592.849	2592.074	10		506	
V	II	2591.32	2590.55	5		478		NI	II	2592.930	2592.155	0		835	
FE	II	2591.321	2590.548	70	145.	488	H	AR	II	2592.953	2592.178	10		506	
SE	III	2591.35	2590.58	30		587		V	II	2592.990	2592.215	4	37.	478	
CO	I	2591.368	2590.594	75	110.	603		FE	I	2593.059	2592.285	3		605	N
NE	I	2591.44	2590.67	10		723		MN	I	2593.073	2592.298	6		148	
MN	II	2591.444	2590.669	40		328		CR	II	2593.09	2592.32	2	254.	340	
CU	III	2591.452	2590.677	15		724		NI	II	2593.165	2592.390	1		835	
CR	II	2591.49	2590.72	75	70.	340		MN	II	2593.182	2592.407	15		328	
NI	II	2591.562	2590.787	2		835		CR	II	2593.19	2592.42	3		340	
N	V	2591.59	2590.81	10	55.	313		CL	III	2593.22	2592.45	200		43	
CR	I	2591.60	2590.83	1		341		NI	II	2593.252	2592.477	15		835	
TI	III	2591.61	2590.84	25		227		NI	II	2593.305	2592.530	1		835	
N	II	2591.713	2590.938	110	18.	200		FE	III	2593.307	2592.533	10		168	
CR	I	2591.72	2590.95	1		341		GE	I	2593.3093	2592.5340	150		7	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	2593.337	2592.563	0		603		S	III	2594.65	2593.87	3		598	
CU	III	2593.339	2592.564	5		724		NI	II	2594.689	2593.913	3		835	
F	III	2593.361	2592.527	1		537		V	II	2594.69	2593.91	2		478	
NI	II	2593.370	2592.595	5		835		NA	I	2594.695	2593.919	F 3	3.	1019	
CU	III	2593.418	2592.643	3		724		CR	II	2594.70	2593.92	3	88.	340	
C	II	2593.48	2592.71	4	36.	287		CR	III	2594.711	2593.937	200		893	
F	III	2593.496	2592.695	1		537		CL	III	2594.74	2593.97	200		43	
V	IV	2593.522	2592.747	0		829		CR	I	2594.79	2594.02	8	21.	341	
FE	II	2593.555	2592.781	360	318.	488	H	FE	I	2594.820	2594.046	1		605	N
F	III	2593.596	2592.821	375		537		GE	II	2594.878	2594.102	10		676	
CU	III	2593.621	2592.846	30		724		CR	II	2594.88	2594.10	4		340	
CR	II	2593.63	2592.86	3	106.	340		FE	I	2594.9271	2594.1514	0	52.	896	
CO	II	2593.60	2592.88	2		825		CO	I	2594.936	2594.161	10	3.	603	
ZN	III	2593.70	2592.93	500		162		MN	II	2594.98	2594.20	10		328	
MN	I	2593.719	2592.944	60	12.	148		S		2595.	2594.			107	N
V	III	2593.84	2593.07	800	13.	791		CR	II	2595.10	2594.35	7	297.	340	
CO	I	2593.845	2593.070	1		603		N	IV	2595.12	2594.34	20		824	N
CR	II	2593.87	2593.10	1		340		CU	III	2595.146	2594.370	1		724	
V	II	2593.878	2593.102	8		782		MN	II	2595.171	2594.396	20	54.	328	
F	III	2594.005	2593.229	450		537		V	II	2595.21	2594.43	3	216.	478	
MG	I	2594.006	2593.231	2		1017		NE	I	2595.28	2594.51	2		723	
CU	III	2594.020	2593.244	2		724		CR	II	2595.29	2594.51	1		340	
FE	I	2594.043	2593.268	0	171.	378		MN	II	2595.313	2594.537	30	54.	328	
MN	II	2594.076	2593.301	155		328		TI	I	2595.40	2594.63	20	7.	488	
CO	II	2594.18	2593.41	3		825		NI	II	2595.421	2594.645	75		835	
CR	I	2594.19	2593.41	8	21.	341		CU	III	2595.424	2594.648	0		724	
CR	II	2594.27	2593.49	8	301.	340		FE	III	2595.45	2594.67	40		188	
FE	I	2594.285	2593.510	60	146.	896		MN	II	2595.509	2594.733	100	36.	328	
K	IV	2594.3	2593.5			726	F	CR	II	2595.58	2594.80	1		340	
MN	II	2594.36	2593.59	P	36.	328		FE	II	2595.739	2594.964	20	310.	488	
NE	III	2594.4	2593.6	107	11.	885		NA	II	2595.740	2594.965	4		693	
V	II	2594.42	2593.64	1		478		AS	II	2595.764	2594.988	170		425	
TI	I	2594.421	2593.647	30	6.	488		C	IV	2595.865	2595.089	100	13.	35	
CU	I	2594.44	2593.65	2		672		V	III	2595.89	2595.12	850	13.	791	
CO	II	2594.489	2593.707	0		825		CU	I	2595.91	2595.14	0		672	
FE	II	2594.496	2593.722	220	64.	488	H	SC	IV	2595.942	2595.167	360		720	
MN	II	2594.499	2593.724	320	1.	328	H	NE	I	2595.98	2595.21	30		1029	Q
O	III	2594.504	2593.730	1		1032		CO	I	2595.989	2595.214	1		603	
CO	II	2594.52	2593.74	2		825		CO	II	2595.990	2595.214	M 20		825	
NA	I	2594.644	2593.869	F	3.	1019		FE	II	2596.060	2595.285		172.	488	H

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
C	IV	2596.071	2595.295	60	13.	35		NI	II	2598.352	2597.575	3		835	
CR	III	2596.087	2595.312	120		893		MN	II	2598.352	2597.576	5		328	
CR	II	2596.12	2595.34	4	87.	340		O	III	2598.47	2597.69	150	20.	488	
FE	I	2596.2011	2595.4251	0	54.	896		MN	I	2598.498	2597.722	2		148	
F	III	2596.310	2595.534	520		537		V	I	2598.51	2597.73	1		489	
CR	II	2596.33	2595.55	25	262.	340		FE	II	2598.718	2597.943	20	342.	488	
FE	III	2596.397	2595.622	150	80.	188		FE	II	2598.804	2598.028	20	239.	488	
MN	III	2596.425	2595.649	5		301		CR	II	2598.84	2598.06	3	261.	340	
MN	II	2596.429	2595.653	40		328		MN	I	2598.948	2598.172	6		148	
AS	II	2596.431	2595.655	0		425		CR	III	2598.959	2598.183	10		893	
NE	III	2596.5	2595.7	69	11.	885		MN	II	2599.025	2598.248	30		328	
CR	I	2596.53	2595.75	1		341		V	IV	2599.063	2598.287	30		829	
MN	IV	2596.539	2595.763	80	12.	148		CO	II	2599.133	2598.359	00		825	
V	IV	2596.634	2595.858	20		829		FE	II	2599.145	2598.369	870	1.	488	H
MG	I	2596.749	2595.973	3		1017		MN	II	2599.196	2598.420	80		328	
NI	II	2596.749	2595.973	10		835		CR	II	2599.26	2598.48	3		340	
CO	I	2596.761	2595.986	0		603		CU	III	2599.299	2598.522	50		724	
CR	II	2596.81	2596.03	25		340		V	II	2599.43	2598.65	2	216.	478	
FE	I	2596.853	2596.077	1	171.	378		AS	II	2599.454	2598.678	170		425	
CR	II	2596.95	2596.17	40	217.	340		CR	III	2599.493	2598.717	1		893	
NI	II	2597.060	2596.284	2		835		CR	II	2599.51	2598.73	2		340	
NI	II	2597.225	2596.448	1		835		CU	II	2599.589	2598.8129	175	92.	612	
F	III	2597.323	2596.547	150		537		MN	II	2599.59	2598.81	40		328	
NI	II	2597.345	2596.569	5		835		FE	I	2599.632	2598.855	1	103.	605	
TI	I	2597.371	2596.596	100	6.	488		MN	II	2599.682	2598.905	220	54.	328	
FE	I	2597.395	2596.618	0	51.	378		MN	II	2599.807	2599.030	60	54.	328	
CU	III	2597.443	2596.667	8		724		CR	II	2599.82	2599.04	2		340	
NI	II	2597.461	2596.685	5		835		CO	I	2599.976	2599.200	5		603	
MN	II	2597.521	2596.745	60	36.	328		CO	II	2599.984	2599.207	M		825	
V	IV	2597.538	2596.761	15		829		CU	III	2600.017	2599.240	3		724	
MN	II	2597.615	2596.839	30		328		F	III	2600.059	2599.282	600		537	
CR	II	2597.65	2596.87	8	144.	340		FE	II	2600.171	2599.395	870	1.	488	H
O	III	2597.68	2596.99	0		168	P	CO	II	2600.197	2599.420	2		825	
CU	III	2597.772	2596.995	3		724		MN	II	2600.331	2599.553	40		328	
ZN	III	2597.84	2597.06	30		162		FE	I	2600.341	2599.565	6	52.	605	
V	II	2597.99	2597.21	6	200.	478		CR	II	2600.43	2599.65	1		340	
CU	III	2598.108	2597.332	10		724		MN	II	2600.57	2599.79	10		328	
CO	II	2598.16	2597.38	M		825		TI	I	2600.686	2599.910	250	6.	488	
GR	II	2598.22	2597.44	2		340		CU	III	2600.693	2599.916	1		724	
MN	II	2598.292	2597.516	30		328		NI	II	2600.713	2599.936	10		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CU	III	2600.760	2599.983	3		724		AS	II	2602.773	2601.995	400		425	
V	IV	2600.760	2599.983	30		829		C	II	2602.80	2602.02	10	33.	287	
V	I	2600.79	2600.01	2		1000		CR	II	2602.82	2602.04	3		340	
NI	II	2600.799	2600.022	10		835		NI	II	2602.890	2602.113	3		835	
V	II	2600.81	2600.03	2		478		AR	III	2602.90	2602.12	10		79	
FE	I	2600.978	2600.202	3		605	N	CR	I	2602.97	2602.19	3		341	
MN	I	2600.997	2600.220	8		148		MN	II	2602.98	2602.20	10		328	
CU	II	2601.0472	2600.2701	200	151	612		V	II	2603.10	2602.32	6		478	
MN	II	2601.060	2600.283	60	54.	328		FE	III	2603.13	2602.35	10		188	
FE	II	2601.191	2600.415	5	204.	488		MN	II	2603.13	2602.35	15		328	
MN	II	2601.26	2600.48	2		328		NI	II	2603.152	2602.374	30		835	
F	III	2601.342	2600.565	300		537		C	II	2603.17	2602.39	10	33.	287	
MN	II	2601.373	2600.596	0		328		MN	II	2603.220	2602.442	10		328	
V	II	2601.38	2600.60	4		478		AS	II	2603.225	2602.448	100		425	
CR	I	2601.39	2600.61	8	21.	341		MG	I	2603.272	2602.495	3		1017	
MN	I	2601.426	2600.650	6		148		CR	I	2603.28	2602.50	6	22.	341	
CR	II	2601.51	2600.73	5	87.	340		CO	I	2603.358	2602.581	1		603	
NI	II	2601.556	2600.779	180		835		CR	I	2603.40	2602.62	1	102.	341	
V	I	2601.575	2600.798	5	73.	1000		CU	III	2603.488	2602.710	5		724	
ZN	III	2601.72	2600.94	100		162		V	I	2603.5	2602.7	1		1000	
AR	II	2601.7373	2600.9599	30		867		MN	II	2603.503	2602.725	170		328	
CO	I	2601.753	2600.977	10	53.	603		CR	III	2603.58	2602.81	10		490	
NI	II	2601.806	2601.029	140	62.	835		F	III	2603.708	2602.930	80		537	
CR	II	2601.82	2601.04	8	243.	340		V	II	2603.72	2602.94	15		478	
C	II	2601.83	2601.05	4	33.	287		CO	II	2603.743	2602.965	M		825	
V	II	2601.86	2601.08	25	216.	478		CU	II	2603.7478	2602.9700	3		612	
MN	II	2601.910	2601.132	20		328		CR	II	2603.78	2603.00	10		340	
CL	III	2601.94	2601.16	400	12.	43		MN	II	2603.813	2603.035	60	54.	328	
CR	II	2602.08	2601.30	3		340		FE	I	2603.819	2603.042	0		378	
CU	III	2602.113	2601.335	10		724		MN	II	2603.921	2603.143	20		328	
C	II	2602.20	2601.42	10	33.	287		C	II	2603.939	2603.161	25	33.	287	
MN	I	2602.263	2601.486	2		148		NI	II	2603.958	2603.180	8		835	
MN	II	2602.298	2601.520	100	54.	328		FE	III	2603.963	2603.186	25		188	
CR	II	2602.36	2601.58	6	88.	340		AS	II	2603.966	2603.188	10		425	
F	III	2602.505	2601.728	4		537		ZN	III	2603.97	2603.19	5		162	
NI	II	2602.613	2601.835	2		835		V	IV	2603.990	2603.213	10		829	
MN	II	2602.623	2601.844	50		328		AL	VI	2604.	2603.			108	
CR	II	2602.63	2601.85	10	124.	340		CR	II	2604.03	2603.25	2		340	
CR	I	2602.66	2601.88	4	21.	341		MN	II	2604.047	2603.269	40		328	
MN	II	2602.765	2601.968	50		328		CL	II	2604.091	2603.314	180		613	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2604.18	2603.40	15	216.	478		CU	I	2605.62	2604.84	1		672	
MN	I	2604.264	2603.487	1		148		CL	II	2605.626	2604.848	1		613	
NI	II	2604.270	2603.492	0		835		C	II	2605.641	2604.863	40	33.	287	
FE	I	2604.332	2603.554	10		896		FE	I	2605.642	2604.864	12		896	
CR	I	2604.34	2603.56	10	22.	341		TI	I	2605.66	2604.88	30	7.	488	
CL	III	2604.37	2603.59	500	12.	43		CR	III	2605.660	2604.882	200		893	
NI	II	2604.398	2603.620	15		835		NI	II	2605.776	2604.998	10		835	
CU	III	2604.442	2603.664	4		724		FE	II	2605.815	2605.037	15	404.	896	
P	II	2604.466	2603.688	30	4.	496		CL	III	2605.82	2605.04	200		43	
MN	II	2604.498	2603.720	170	36.	328		LI	II	2605.859	2605.081	1		307	
C	II	2604.50	2603.72	4	33.	287		V	I	2605.862	2605.084	4	73.	1000	
CR	II	2604.51	2603.73	10	105.	340		TI	I	2605.941	2605.163	250	6.	488	
MN	II	2604.63	2603.86	12		328		CU	I	2606.04	2605.26	3		672	
MG	I	2604.632	2603.854	7		1017		CR	III	2606.08	2605.30	10		490	
V	I	2604.709	2603.932	1		1000		NI	II	2606.110	2605.331	180	62.	835	
ZN	III	2604.77	2603.99	20		162		AS	II	2606.114	2605.336	0		425	
FE	I	2604.781	2604.003	3		896		FE	II	2606.117	2605.339	20	342.	896	
CR	III	2604.79	2604.01			893	F M P	CR	I	2606.14	2605.36	7	22.	341	
FE	II	2604.825	2604.048	5	404.	488		O	III	2606.19	2605.41	90	20.	488	
CR	I	2604.86	2604.08	2	102.	341		FE	II	2606.202	2605.424	20	204.	896	
TI	II	2604.89	2604.11	2		601		CO	II	2606.26	2605.48	1		825	
MN	II	2604.902	2604.124	15		328		V	III	2606.26	2605.48	25		325	
CR	II	2604.94	2604.16	20	105.	340		P	IV	2606.284	2605.506	250		937	
CL	II	2604.941	2604.162	130		613		NI	II	2606.294	2605.516	3		835	
V	I	2605.072	2604.294	5	73.	1000		V	V	2606.301	2605.523	40		872	
MN	II	2605.093	2604.315	18		328		C	II	2606.40	2605.62	4	33.	287	
CU	III	2605.165	2604.387	0		724		CR	II	2606.41	2605.63	15	280.	340	
MN	II	2605.167	2604.389	30		328		CL	II	2606.430	2605.651	22		613	
CO	II	2605.184	2604.406	20		825		FE	I	2606.4351	2605.6566	60	51.	896	
SI	II	2605.200	2604.422	2	15.	678		MN	II	2606.460	2605.682	320	1.	328	
V	II	2605.29	2604.51	1		478		CO	II	2606.47	2605.69	10	26.	825	
CU	II	2605.304	2604.526	1		612		SE	III	2606.47	2605.69	1		587	
BE	IV	2605.400	2604.622			309		V	II	2606.48	2605.70	7		478	
FE	II	2605.432	2604.655	5	265.	488		CR	I	2606.60	2605.82	6	102.	341	
NI	II	2605.449	2604.671	10		835		FE	II	2606.680	2605.902	8	356.	896	
CU	I	2605.45	2604.67	1		672		CO	II	2606.69	2605.91	4		825	
CO	II	2605.48	2604.70	1		825		CU	II	2606.75	2605.97	1		670	
AL	V	2605.48	2604.71	10		873		AR	II	2606.763	2605.985	10		506	
CR	I	2605.49	2604.71	3	22.	341		NE	II	2606.784	2606.006	50		563	
FE	I	2605.532	2604.754	15		896		GE	II	2606.788	2606.010	15		676	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
P	II	2606.838	2606.059	150	4.	496		CR	II	2608.63	2607.85	10	242.	340	
F	III	2606.840	2606.061	375		537		MN	II	2608.637	2607.858	15		328	
CR	II	2606.85	2606.07	12	105.	340		CU	III	2608.663	2607.884	5		724	
SI	II	2606.863	2606.084	1	15.	678		CR	II	2608.68	2607.90	50	70.	340	
MN	II	2606.894	2606.116	8	32.	328		V	II	2608.78	2608.00	20	218.	478	
CO	I	2606.898	2606.120	40	55.	603		NE	II	2608.819	2608.040	60		563	
MN	I	2606.915	2606.137	1		148		AR	IV	2608.84	2608.06	100	5.	488	
NI	II	2607.034	2606.255	220	65.	835		FE	III	2608.890	2608.112	120	91.	188	
MN	II	2607.039	2606.260	40		328		CR	II	2608.95	2608.17	20	105.	340	
FE	I	2607.081	2606.303	10		896	M	CL	II	2609.020	2608.241	14		613	
FE	II	2607.291	2606.512	170	342.	896	H	CR	II	2609.07	2608.29	3		340	
CR	II	2607.31	2606.53	25	63.	340		CR	I	2609.163	2608.385	10	20.	341	
CU	II	2607.3593	2606.5807	2		612		MN	II	2609.223	2608.446	80		328	
MN	II	2607.384	2606.604	40		328		CU	III	2609.227	2608.448	10		724	
MG	I	2607.399	2606.621	10		1017		ZN	I	2609.336	2608.558	60	7.	830	
FE	I	2607.422	2606.644	4		605	N	AS	II	2609.351	2608.572	30		425	
CR	II	2607.43	2606.65	4		340		FE	I	2609.356	2608.577	20		896	
C	VI	2607.47	2606.69			309		CR	II	2609.38	2608.60	1	143.	340	
FE	I	2607.6056	2606.8269	280	52.	896		ZN	I	2609.418	2608.640	10	7.	830	
MN	II	2607.620	2606.842	40		328		V	II	2609.44	2608.66	1		478	
CU	II	2607.6551	2606.8764	4		612		FE	III	2609.460	2608.682	60	136.	188	
CO	II	2607.77	2606.99	2		825		CL	II	2609.479	2608.700	15		613	
CU	II	2607.7764	2606.9977	3		612		CR	II	2609.58	2608.80	8	87.	340	
CR	II	2607.84	2607.06	12	87.	340		MN	II	2609.593	2608.814	100		328	
CO	II	2607.860	2607.082	00		825		FE	II	2609.631	2608.852	4	171.	896	H
FE	II	2607.864	2607.086	750	1.	488	H	CO	I	2609.678	2608.900	1		603	
ZN	III	2607.88	2607.10	10		162		FE	I	2609.815	2609.036	6		896	M
V		2607.90	2607.12	7		1000		CR	II	2609.89	2609.11	1	261.	340	
MA	II	2608.067	2607.288	30		328		FE	II	2609.904	2609.125	12	310.	896	H
V	II	2608.19	2607.41	3		478		MN	II	2609.91	2609.13	2		328	
GA	I	2608.25	2607.47	110	3.	488		FE	I	2610.000	2609.221	10		896	
FE	II	2608.307	2607.529	10		896		CR	II	2610.02	2609.24	4		340	
CU	III	2608.368	2607.589	0		724		NI	II	2610.065	2609.286	15		835	
CO	II	2608.39	2607.61	2		825		CU	I	2610.09	2609.31	0		672	
FE	II	2608.407	2607.628	6		896		CU	III	2610.099	2609.320	340	23.	724	
CR	II	2608.41	2607.64	10	105.	340		FE	II	2610.219	2609.440	4	265.	896	
V	IV	2608.412	2607.633	5		829		MN	II	2610.22	2609.44	10		328	
CU	III	2608.423	2607.644	3		724		CO	II	2610.247	2609.468	00		825	
P	II	2608.53	2607.75	0		431		SE	I	2610.25	2609.47	10		588	
V	I	2608.531	2607.752	10		1000		CL	III	2610.28	2609.50	400	12.	43	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	2610.33	2609.55	3	105.	340		FE	I	2611.782	2611.002	3		896	M
MN	II	2610.337	2609.558	100		328		V	I	2611.810	2611.031	1		1000	
FE	I	2610.359	2609.579	8		896	M	CR	II	2611.82	2611.04	30	124.	340	
V	II	2610.38	2609.60	3		478		FE	II	2611.853	2611.073	20	64.	896	H
O	III	2610.415	2609.636	40		1032		P	III	2611.927	2611.147	200		936	
AS	II	2610.423	2609.644	0		425		SC	II	2612.01	2611.23	3	3.	488	
AR	II	2610.46	2609.68	0		506		V	II	2612.02	2611.24	10		478	
V	II	2610.58	2609.80	5	216.	478		V	I	2612.034	2611.255	8	73.	1000	
C	III	2610.610	2609.830	5	12.	34		CU	II	2612.0345	2611.2547	1		612	
CR	I	2610.62	2609.84	1	102.	341		CU	I	2612.06	2611.30	0		672	
FE	II	2610.646	2609.866	10	204.	896	H	TI	I	2612.066	2611.287	250	6.	488	
CU	II	2610.6886	2609.9091	15		612		FE	II	2612.118	2611.339	5	173.	488	
AS	II	2610.691	2609.912	5		425		CR	I	2612.121	2611.342	3	82.	341	
NI	II	2610.725	2609.945	220	62.	835		NE	III	2612.20	2611.42	80		1031	
FE	I	2610.785	2610.006	15		896	M	CL	III	2612.23	2611.45	200		43	
C	III	2610.799	2610.020	160	12.	34		TI	I	2612.248	2611.468	80	6.	488	
NE	III	2610.81	2610.03	300		1031		CU	III	2612.253	2611.473	10		724	
CR	II	2610.82	2610.04	20	324.	340		V	II	2612.29	2611.51	7	216.	478	
AS	II	2610.842	2610.062	5		425		CR	II	2612.40	2611.62	20	105.	340	
V	V	2610.877	2610.098	100		872		NI	II	2612.427	2611.647	75	56.	835	
NI	II	2610.950	2610.170	5		835		ZN	III	2612.46	2611.68	15		162	
MN	II	2610.980	2610.200	1000	19.	328	H	MN	II	2612.52	2611.74	1		328	
CO	II	2611.07	2610.29	1		825		CR	I	2612.53	2611.75	1	102.	341	
CR	I	2611.07	2610.29	8	20.	341		V	I	2612.53	2611.75	1		1000	
NE	II	2611.089	2610.310	60		563		NA	II	2612.592	2611.812	120	12.	693	
V	IV	2611.102	2610.323	10		829		CO	II	2612.62	2611.84	4		825	
FE	I	2611.222	2610.442	4		896	M	CO	II	2612.653	2611.873	00		825	
NI	II	2611.258	2610.478	3		835		FE	II	2612.653	2611.873	240	1.	896	
MN	II	2611.364	2610.562	60		328		NI	II	2612.745	2611.965	2		835	
V	II	2611.39	2610.61	30		478		CR	I	2612.788	2612.009	7	21.	341	
ZN	III	2611.40	2610.62	50		162		CR	II	2612.84	2612.08	8		340	
CR	II	2611.48	2610.70	40	316.	340		CR	I	2612.981	2612.202	8	21.	341	
FE	I	2611.5302	2610.7505	10	6.	896		CR	III	2612.983	2612.203	4		893	
CO	I	2611.541	2610.762	40	53.	603		MN	I	2613.012	2612.233	5		148	
CU	II	2611.5736	2610.7940	2		612		NI	II	2613.015	2612.235	8		835	
CO	II	2611.589	2610.809	00		825		V	II	2613.04	2612.26	15		478	
CR	II	2611.59	2610.81	50	316.	340		CR	II	2613.12	2612.34	7	316.	340	
MN	II	2611.632	2610.852	60		328		CR	III	2613.170	2612.390	10	65.	893	
V	I	2611.670	2610.891	6	73.	1000		C	II	2613.22	2612.45	10	43.02	287	
F	III	2611.697	2610.917	150		537		CO	II	2613.253	2612.473	20		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	I	2613.270	2612.490	7	20.	341		V	III	2614.94	2614.16	1		325	
FE	V	2613.31	2612.53			229	F	V	IV	2614.940	2614.159	1		829	
CR	II	2613.34	2612.56	15	105.	340		MN	II	2614.942	2614.161	40		328	
CU	II	2613.3476	2612.5676	1		612		FE	II	2614.957	2614.177	20	264.	488	
MN	II	2613.41	2612.63	60		328		CR	I	2614.96	2614.18	2		341	
CU	II	2613.4597	2612.6796	3		612		FE	II	2615.022	2614.242	1		645	
FE	I	2613.5523	2612.7722	20	6.	896		NE	I	2615.04	2614.26	5		723	
MN	I	2613.639	2612.860	20	28.	148		CO	II	2615.147	2614.366	20	20.	825	
ZN	II	2613.725	2612.945	10		154		FE	I	2615.151	2614.370	4		896	M
MN	I	2613.785	2613.006	1		148		MN	II	2615.16	2614.38	5		328	
F	III	2613.880	2613.100	375		537		V	II	2615.175	2614.395	10	90.	478	
CR	II	2613.92	2613.14	10		340		CU	II	2615.1935	2614.4130	40		612	
CL	II	2614.027	2613.247	6		613		ZN	III	2615.25	2614.47	20		162	
FE	I	2614.045	2613.265	8		896	M	C	III	2615.259	2614.478	110	12.	34	
NI	II	2614.072	2613.291	2		835		FE	I	2615.2745	2614.4940	25	52.	896	
CR	I	2614.085	2613.305	10	21.	341		NE	III	2615.29	2614.51	80		1031	
MG	I	2614.137	2613.357	2	14.	1017		MN	I	2615.329	2614.550	3		148	
AS	II	2614.184	2613.404	0		425		CR	II	2615.35	2614.57	50		340	
NE	III	2614.19	2613.41	240		1031		NI	II	2615.414	2614.633	3		835	
FE	II	2614.196	2613.416	12		896		CL	II	2615.428	2614.648	41		613	
MN	II	2614.21	2613.43	15		328		CO	II	2615.45	2614.67	4		825	
F	III	2614.238	2613.458	110		537		MG	I	2615.507	2614.726	3		1017	
CO	I	2614.271	2613.492	25		603		FE	II	2615.648	2614.867	20	14.	488	
CO	II	2614.275	2613.495	20	17.	825		CR	II	2615.68	2614.90	10	105.	340	
CR	II	2614.29	2613.51	12	269.	340		V	I	2615.68	2614.90	2		489	
FE	II	2614.356	2613.576	20	172.	488		NI	II	2615.836	2615.056	220	65.	835	
NE	I	2614.41	2613.63	30		723		CL	II	2615.905	2615.124	100		613	
CO	II	2614.43	2613.65		M	825		HE	I	2615.964	2615.184		M	497	
CR	III	2614.534	2613.754	150		893		CO	I	2616.116	2615.336	40		603	
MN	II	2614.570	2613.789	40		328		V	II	2616.18	2615.40	40	216.	478	
CR	I	2614.60	2613.82	8	20.	341		FE	I	2616.202	2615.422	20		896	
CR	II	2614.60	2613.82	3	297.	340		AS	II	2616.296	2615.515	2		425	
FE	II	2614.600	2613.820	750	1.	488	H	MN	II	2616.480	2615.699	30		328	
V	I	2614.63	2613.85	2		489		ZN	III	2616.50	2615.72	15		162	
V	II	2614.633	2613.853	3		782		FE	II	2616.510	2615.729	1	297.	488	
CO	I	2614.674	2613.894	4		603		ZN	III	2616.62	2615.84	30		162	
NE	I	2614.705	2613.925	8		896		CR	II	2616.63	2615.85	1		340	
MN	II	2614.817	2614.036	40		328		FE	I	2616.630	2615.849	10		896	M
CO	I	2614.903	2614.124	30	3.	603		MN	I	2616.630	2615.850	5		148	
P	IV	2614.925	2614.144	4		937		NE	III	2616.65	2615.87	200		1031	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2616.67	2615.89	2		478		FE	II	2618.397	2617.618	650	1.	488	H
CR	II	2616.96	2616.18	50		340		MN	II	2618.416	2617.636	50		328	
O	III	2616.98	2616.20	0		1032		CA	I	2618.44	2617.66	6	3.	488	
V	II	2617.02	2616.24	40	90.	478		CO	I	2618.639	2617.859	50		603	
CO	I	2617.040	2616.260	40	112.	603		ZN	III	2618.7	2617.9	5		162	
MN	I	2617.080	2616.300	4		148		FE	III	2618.70	2617.92	10		188	
CR	I	2617.24	2616.46	3		341		CL	II	2618.709	2617.928	2		613	
CR	III	2617.291	2616.512	400	65.	893		NI	II	2618.748	2617.967	2		035	
MN	II	2617.302	2616.521	100	19.	328		BE	II	2618.766	2617.985	3		332	
NE	I	2617.40	2616.62	25		723		FE	I	2618.7997	2618.0183	155	32.	896	
C	III	2617.408	2616.627	70	12.	34		MG	III	2618.80	2618.01	80		2	
V	II	2617.44	2616.66	10	215.	478		BE	II	2618.914	2618.133	15		332	
HE	I	2617.492	2616.711	M		497		MN	II	2618.933	2618.145	700	19.	328	
MN	II	2617.52	2616.74	10		328		CR	I	2619.054	2618.273	15	20.	341	
FE	I	2617.520	2616.739	12		896	M	S	VI	2619.14	2618.36	0		52	
AR	II	2617.5929	2616.8118	30		867		CU	I	2619.146	2618.366	500	18.	672	
FE	III	2617.668	2616.888	10		188		V	II	2619.18	2618.40	3		478	
MN	II	2617.715	2616.934	20		328		MN	I	2619.251	2618.470	4	27.	148	
CO	II	2617.73	2616.94	00		825		HE	I	2619.259	2618.478	M		497	
F	III	2617.73	2616.95	4		537		CR	II	2619.27	2618.49	7	87.	340	
CL	III	2617.75	2616.97	400	12.	43		CR	II	2619.41	2618.63	15	316.	340	
O	III	2617.799	2617.020	4		1032		V	II	2619.41	2618.63	1		478	
CR	II	2617.91	2617.03	1	316.	340		ZN	III	2619.44	2618.66	50		162	
V	II	2617.88	2617.10	9	216.	478		FE	I	2619.4913	2618.7098	25	6.	896	
FE	I	2617.914	2617.132	8		896	M	CR	II	2619.55	2618.77	12		340	
FE	III	2617.929	2617.149	150	142.	188		CL	III	2619.56	2618.78	400	12.	43	
AR	III	2618.04	2617.26	10		79		O	V	2619.59	2618.81	3		83	
SE	III	2618.11	2617.33	150		587		O	III	2619.647	2618.868	0		032	
NI	II	2618.117	2617.336	10		835		P	IV	2619.679	2618.897	10		937	
F	III	2618.166	2617.385	80		537		CO	II	2619.682	2618.901	10	26.	825	
ZN	III	2618.18	2617.40	10		162		V	I	2619.689	2618.908	5	57.	1000	
CR	I	2618.22	2617.44	1		341		MN	I	2619.692	2618.911	20	27.	148	
MN	II	2618.238	2617.456	100		328		MN	II	2619.701	2618.920	40		328	
CL	II	2618.245	2617.463	29		613		MN	II	2619.784	2619.003	40		328	
CR	II	2618.28	2617.50	3	280.	340		NE	I	2619.80	2619.02	3		1029	Q
MG	I	2618.294	2617.513	5	14.	1017		FE	II	2619.855	2619.074	20	171.	896	H
NI	II	2618.324	2617.543	5		835		CR	III	2619.963	2619.184	10		893	
CO	II	2618.33	2617.55	M		825		CU	II	2619.9924	2619.2107	15		612	
MN	I	2618.345	2617.564	1	27.	148		CO	I	2620.057	2619.276	50		603	
AR	II	2618.377	2617.596	20		506		MN	II	2620.093	2619.311	40		328	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	III	2620.25	2619.47	20	325		CR	I	2621.84	2621.06	1	341	
V	II	2620.26	2619.48	5	478		NE	I	2621.88	2621.10	4	1029	Q
CR	I	2620.285	2619.504	8	341	58.	N	III	2621.90	2621.12	25	910	
MN	I	2620.291	2619.510	25	148	26.	CR	II	2621.96	2621.18	2	340	
CR	II	2620.37	2619.59	75	340	324.	ZN	III	2621.98	2621.20	10	162	
NE	I	2620.55	2619.77	2	1029		MN	II	2622.082	2621.300	50	328	
CL	II	2620.570	2619.788	38	613	Q	NE	II	2622.338	2621.556	50	563	
CO	II	2620.586	2619.804	20	825		CO	II	2622.39	2621.61	1	825	
MN	I	2620.600	2619.819	5	148		FE	I	2622.405	2621.623	12	896	M
CR	I	2620.65	2619.87	2	341		ZN	III	2622.43	2621.65	40	162	
O	V	2620.68	2619.88	7	83		FE	II	2622.451	2621.669	40	896	H
TI	I	2620.722	2619.942	100	488		MN	II	2622.51	2621.73	1	328	
CR	I	2620.760	2619.978	12	341	6.	V	II	2622.562	2621.780	70	782	
MN	I	2620.761	2619.980	10	148	27.	CR	II	2622.58	2621.80	4	340	
CL	III	2620.83	2620.05	400	43	23.	AR	II	2622.661	2621.879	10	506	
V	II	2620.84	2620.06	3	478		CL	II	2622.665	2621.883	13	613	
CO	III	2620.872	2620.090	3	724		FE	I	2622.724	2621.942	3	896	M
CO	II	2620.88	2620.10	2	825		FE	I	2622.747	2621.965	3	896	M
CR	II	2620.88	2620.10	1	340	123.	ZN	III	2622.75	2621.97	15	162	
O	III	2620.888	2620.108	1	1032		CR	II	2622.81	2622.03	3	340	
FE	II	2620.953	2620.172	10	896	173.	CO	I	2622.840	2622.059	40	603	
C	II	2620.98	2620.20	25	287	27.	CR	I	2622.88	2622.10	1	341	
MN	II	2621.027	2620.245	30	328		ZN	III	2622.95	2622.17	30	162	
V	I	2621.065	2620.284	20	1000	73.	CO	I	2623.031	2622.250	3	603	
V	IV	2621.101	2620.320	25	829		O	III	2623.05	2622.27	10	168	P
V	III	2621.11	2620.33	25	325		CO	I	2623.212	2622.430	30	603	
FE	II	2621.190	2620.408	12	896	1.	CL	II	2623.404	2622.621	2	613	
NE	IV	2621.2	2620.4	40	885		CR	II	2623.42	2622.64	4	340	
CR	II	2621.26	2620.48	50	340	316.	CO	II	2623.52	2622.74	1	825	
CR	I	2621.262	2620.480	12	341	20.	V	II	2623.52	2622.74	50	478	
V	V	2621.3	2620.5		115		ZN	III	2623.58	2622.80	5	162	
HE	I	2621.316	2620.534		497		MN	II	2623.62	2622.74	20	328	
NE	II	2621.319	2620.537	60	563		CR	I	2623.648	2622.867	18	341	
CU	II	2621.4479	2620.6659	65	612		N	III	2623.65	2622.87	40	910	
FE	II	2621.477	2620.695	20	896	171.	CU	I	2623.657	2622.875	5	672	
CA	III	2621.599	2620.817	360	64	9.	MN	I	2623.677	2622.895	25	148	
CR	I	2621.622	2620.841	7	341	82.	NE	I	2623.68	2622.90	15	723	
CR	II	2621.64	2620.86	5	340		C	II	2623.69	2622.90	10	287	
CO	II	2621.66	2620.88	1	825		HE	I	2623.730	2622.947		497	
AR	II	2621.767	2620.985	40	506		CR	II	2623.78	2623.00	5	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
O	III	2623.78	2623.00	4		1032		P	II	2625.514	2624.731	40	4.	496	
NI	II	2623.854	2623.071	10		835		MN	II	2625.544	2624.761	40	19.	328	
AR	II	2623.873	2623.090	10		506		CO	I	2625.577	2624.795	1		603	
MN	II	2623.88	2623.10	5	19.	328		MN	I	2625.582	2624.800	10	24.	148	
FE	II	2623.890	2623.107	4	318.	896	H	GA	I	2625.60	2624.82	285	3.	488	
NE	II	2623.890	2623.107	80		563		V	II	2625.642	2624.860	15	216.	478	
NI	II	2623.936	2623.154	20		835		MN	II	2625.739	2624.956	10		328	
CR	II	2623.98	2623.20	40	324.	340		CR	II	2625.78	2625.00	2		340	
MN	I	2624.066	2623.284	8	24.	148		V	II	2625.79	2625.01	4		478	
MN	I	2624.144	2623.362	5	27.	148		F	III	2625.795	2625.012	520		537	
FE	I	2624.1484	2623.3657	20	6.	896		MN	II	2625.833	2625.050	5		328	
CR	II	2624.17	2623.39	30	124.	340		CU	III	2625.899	2625.116	15		724	
CO	II	2624.24	2623.44	M		825		MN	I	2625.902	2625.120	3	26.	148	
CO	I	2624.221	2623.440	2	53.	603		MN	II	2625.957	2625.174	40		328	
NE	II	2624.243	2623.460	60		563		FE	II	2625.983	2625.202	1	410.	488	
V	IV	2624.266	2623.483	15		829		FE	III	2626.050	2625.268	25	91.	188	
FE	I	2624.316	2623.533	200	52.	896		CR	I	2626.100	2625.318	15	20.	341	
MN	II	2624.407	2623.624	20		328		CL	II	2626.272	2625.488	17		613	
FE	I	2624.409	2623.626	6		896	M	FE	II	2626.273	2625.490	50	318.	896	H
FE	II	2624.508	2623.726	15	171.	896	H	F	IV	2626.29	2625.51	1		173	
CO	I	2624.536	2623.755	40		603		MN	II	2626.388	2625.606	550	19.	328	
F	III	2624.570	2623.787	150		537		CR	III	2626.416	2625.635	25	65.	893	
V	II	2624.574	2623.792	15	89.	478		FE	II	2626.450	2625.667	140	1.	896	H
CR	II	2624.60	2623.82	10	324.	340		O	III	2626.46	2625.68	1		1032	
CO	I	2624.74	2623.96	5		603		AR	II	2626.495	2625.711	10		506	
MN	I	2624.827	2624.043	50	27	148		HE	I	2626.589	2625.806	M		497	
MN	II	2624.830	2624.047	0		328		ZN	III	2626.60	2625.82	5		162	
CL	II	2624.887	2624.104	5		613		CR	II	2626.65	2625.87	2	143.	340	
V	IV	2624.996	2624.213	50		829		MN	II	2626.68	2625.90	20		328	
CU	III	2625.011	2624.228	20		724		CU	III	2626.707	2625.924	0		724	
NI	II	2625.150	2624.367	10		835		NE	II	2626.774	2625.991	60		563	
MN	I	2625.249	2624.466	1		148		CR	III	2626.853	2626.072	570		893	
AL	IV	2625.32	2624.54	5		888		MN	II	2626.90	2626.12	30		328	
AR	II	2625.376	2624.593	30		506		CO	I	2626.904	2626.122	1		603	
MN	I	2625.424	2624.642	2	24	148		P	II	2626.962	2626.178	100	4.	496	
CR	II	2625.44	2624.66	4		340		CR	II	2627.08	2626.30	2		340	
FE	I	2625.444	2624.661	5		896	M	V	II	2627.20	2626.42	2		478	
NI	II	2625.480	2624.697	15		835		NI	II	2627.209	2626.426	140	62.	835	
CL	III	2625.49	2624.71	300	23.	43		MN	II	2627.251	2626.468	60		328	
O	III	2625.496	2624.715	1		1032		FE	II	2627.284	2626.501	15	173.	896	H

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
NI	II	2627.354	2626.570	5		835		O	III	2629.09	2628.31	4		1032	
CR	I	2627.383	2626.601	15	21.	341		CO	II	2629.10	2628.31	00		825	
MN	I	2627.417	2626.635	20	26.	148		NE	II	2629.111	2628.327	30		563	
CU	I	2627.461	2626.678	10	42.	672		SE	III	2629.22	2628.44	30		587	
CR	II	2627.47	2626.69	15	316.	340		C	II	2629.24	2628.46	4	59.	287	
FE	II	2627.477	2626.695	5	203.	488		CU	III	2629.275	2628.491	10		724	
CO	II	2627.51	2626.72	10		825		MN	II	2629.289	2628.505	30		328	
F	IV	2627.52	2626.74	10		173		CU	III	2629.334	2628.550	0		724	
CR	II	2627.56	2626.78	20	280.	340		FE	II	2629.351	2628.569	20	203.	488	
NI	II	2627.671	2626.888	40		835		P	II	2629.366	2628.582	70	4.	496	
CL	II	2627.685	2626.902	11		613		MG	I	2629.448	2628.664	5	13.	1017	
CO	I	2627.814	2627.031	2		603		CR	II	2629.50	2628.72	2	324.	340	
MN	II	2627.841	2627.058	40		328		V	II	2629.53	2628.75	30		478	
CU	III	2627.847	2627.063	1		724		CO	I	2629.544	2628.761	3		603	
FE	I	2627.9108	2627.1272	3		896		MN	II	2629.552	2628.768	30		328	
FE	I	2627.944	2627.160	3		896	M	CO	II	2629.57	2628.78	20	26.	825	
F	III	2627.949	2627.165	80		537		CU	I	2629.643	2628.860	1		672	
CR	II	2627.95	2627.17	3	324.	340		CO	II	2629.66	2628.87	00		825	
FE	I	2628.0078	2627.2243	5		896		CR	II	2629.66	2628.88	2		340	
P	IV	2628.092	2627.308	10		937		S	II	2629.8	2629.1	200	11.	285	
V	II	2628.10	2627.32	1		478		CR	II	2629.82	2629.04	5	164.	340	
SC	III	2628.117	2627.334	2		855		ZN	III	2629.87	2629.09	40		162	
CU	I	2628.148	2627.365	20	42.	672		V	I	2629.877	2629.094	5		1000	
AR	II	2628.181	2627.397	30		506		HE	I	2630.013	2629.229		M	497	
F	III	2628.231	2627.447	30		537		MN	II	2630.024	2629.239	20		328	
MN	I	2628.26	2627.48	1		148		AS	II	2630.060	2629.276	0		425	
CO	I	2628.421	2627.638	50	54.	603		ZN	III	2630.16	2629.38	20		162	
V	III	2628.45	2627.67	20		325		CR	II	2630.20	2629.42	4	324.	340	
CU	III	2628.522	2627.738	10		724		CU	III	2630.233	2629.449	10		724	
CR	I	2628.620	2627.847	4	66.	341		MN	II	2630.338	2629.554	60		328	
CR	II	2628.73	2627.95	35	323.	340		FE	I	2630.3566	2629.5725	15	6.	896	
MN	I	2628.773	2627.990	2		148		CR	II	2630.36	2629.58	8	198.	340	
V	II	2628.87	2628.09	4		478		FE	II	2630.372	2629.590	285	171.	488	
V	IV	2628.874	2628.090	20		829		F	III	2630.484	2629.700	600		537	
MN	I	2628.883	2628.100	2		148		V	II	2630.50	2629.72	60	216.	478	
MN	II	2628.942	2628.158	20		328		NE	II	2630.505	2629.721	70		563	
NE	II	2628.971	2628.187	60		563		NI	II	2630.571	2629.787	40		835	
MG	VII	2629.	2628.			843	FH	CR	II	2630.59	2629.81	2		340	
FE	II	2629.076	2628.293	125	1.	896	H	CR	I	2630.598	2629.815	12	20.	341	
MN	II	2629.076	2628.293	80		328		NE	II	2630.669	2629.885	80		563	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	2630.753	2629.970	30		603		MN	II	2632.556	2631.771	30		328	
CU	I	2630.788	2630.004	20	41.	672		GE	IV	2632.56	2631.78	5		406	
MN	II	2630.80	2630.02	10		328		CR	II	2632.65	2631.87	3		340	
MG	I	2630.837	2630.053	15	13.	1017		AR	III	2632.68	2631.90	70	9.	488	
FE	II	2630.855	2630.071	20	171.	896	H	NE	II	2632.752	2631.967	60		563	
CL	II	2630.979	2630.195	11		613		CO	II	2632.76	2631.98	2		825	
TI	II	2631.0	2630.2	M		601		MN	II	2632.791	2632.006	140	19.	328	
MP	I	2631.043	2630.260	8	25.	148		NI	II	2632.825	2632.040	5		835	
NJ	II	2631.058	2630.273	30	17.	835		CR	I	2632.84	2632.06	5	66.	341	
F	IV	2631.06	2630.28	25		173		CR	II	2632.88	2632.10	3	144.	340	
F	III	2631.118	2630.334	150		537		FE	I	2633.0216	2632.2369	100	52.	896	
V	II	2631.26	2630.48	30		782		CU	III	2633.023	2632.238	5		724	
FE	I	2631.282	2630.498	3		896	M	CO	II	2633.040	2632.255	30	20.	825	
CC	II	2631.30	2630.52	1		825		NI	II	2633.040	2632.255	50		835	
FE	III	2631.310	2630.527	10	91.	188		V	I	2633.084	2632.300	2		1000	
N	II	2631.330	2630.545	1		835		SC	IV	2633.114	2632.331	40		720	
M	I	2631.348	2630.565	25	24.	148		MN	II	2633.139	2632.354	450	19.	328	H
V	II	2631.449	2630.665	150	89.	478		CR	II	2633.14	2632.36	20	324.	340	
M	I	2631.504	2630.721	2	25.	148		V	I	2633.182	2632.398	2		1000	
Z	III	2631.51	2630.73	15		162		TI	I	2633.207	2632.424	150	5.	488	
CI	II	2631.71	2630.93	50	63.	340		CR	II	2633.32	2632.54	15	337.	340	
F	III	2631.717	2630.933	300		537		CO	II	2633.35	2632.57	4		825	
FI	I	2631.796	2631.012	30		896	M	FE	I	2633.3798	2632.5939	20	6.	896	
CI	II	2631.823	2631.039	00		825		AS	II	2633.422	2632.637	1		425	
FI	II	2631.831	2631.047	155	171.	896	H	GA	I	2633.44	2632.66	450	3.	488	
F	II	2631.831	2631.047	155	1.	896	H	CL	III	2633.45	2632.67	500	23.	43	
MI	II	2631.93	2631.15	10	19.	328		NI	II	2633.498	2632.713	50	63.	835	
CC	I	2631.999	2631.215	1		603		P	III	2633.498	2632.713	300		936	
SI	I	2632.0665	2631.2819	190	83.	608		CR	II	2633.55	2632.77	5	279.	340	
CC	II	2632.096	2631.312	M		825		CL	II	2633.605	2632.821	3		613	
CF	XI	2632.1	2631.3			726	F	MG	I	2633.658	2632.873	25	13.	1017	
FE	II	2632.106	2631.322	155	1.	896	H	CO	I	2633.68	2632.89	3		603	
CL	II	2632.134	2631.349	2		613		TI	II	2633.73	2632.95	M		601	
NI	II	2632.134	2631.349	100	63.	835		CL	II	2633.732	2632.947	4		613	
V	II	2632.267	2631.484	3		478		V	II	2633.74	2632.96	3		478	
TI	I	2632.33	2631.55	10	5.	488		MN	II	2633.760	2632.975	20		328	
AL	II	2632.336	2631.553	80	11.	488		CR	I	2633.770	2632.987	4	19.	341	
FE	II	2632.393	2631.608	50	171.	896		FE	I	2633.773	2632.988	5		896	M
NE	II	2632.414	2631.630	20		563		AS	II	2633.820	2633.035	1		425	
P	II	2632.49	2631.70	0		431		NI	II	2633.839	2633.054	3		835	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	I	2633.87	2633.09	2		341		CO	II	2636.02	2635.23	1		825	
MN	II	2633.870	2633.085	10		328		FE	II	2636.089	2635.304	3		896	
FE	I	2633.907	2633.122	20		896	M	CL	II	2636.092	2635.306	2		613	
P	IV	2633.955	2633.170	1		937		O	VIII	2636.1	2635.3			309	
CL	III	2633.96	2633.18	500	12.	43		F	IV	2636.15	2635.37	25		173	
CR	I	2633.97	2633.19	1		341		FE	II	2636.188	2635.402	5	296.	896	
FE	II	2633.989	2633.203	8	356.	896	H	FE	II	2636.188	2635.402	5	238.	896	
V	II	2634.06	2633.28	2		478		V	II	2636.21	2635.43	7	216.	478	
MN	II	2634.119	2633.334	40		328		CR	I	2636.22	2635.44	7	81.	341	
CR	I	2634.16	2633.38	2		341		CL	II	2636.23	2635.44	6		345	
HE	I	2634.160	2633.375		M	497		MN	I	2636.337	2635.551	4		148	
NI	II	2634.343	2633.558	2		835		CO	II	2636.34	2635.55	1		825	
CR	II	2634.37	2633.59	10	324.	340		TI	II	2636.38	2635.60	5	29.	488	
V	I	2634.372	2633.588	4	13.	1000		AS	II	2636.386	2635.600	1		425	
FE	I	2634.406	2633.621	2		896	M	MN	II	2636.390	2635.604	0		328	
CR	III	2634.495	2633.711	1		893		V	II	2636.424	2635.640	10	89.	478	
MN	II	2634.53	2633.75	2		328		CU	III	2636.453	2635.667	3		724	
MN	II	2634.580	2633.795	30		328		FE	I	2636.508	2635.723	10		896	M
FE	III	2634.603	2633.819	40		188		CU	I	2636.525	2635.614	1		672	
AS	II	2634.661	2633.878	5		425		CR	II	2636.53	2635.74	10		340	
V	II	2634.69	2633.91	3		478		CR	I	2636.561	2635.777	8	81.	341	
AR	II	2634.786	2634.001	20		506		CL	II	2636.593	2635.807	8		613	
CL	II	2634.89	2634.10	4		345		FE	I	2636.5948	2635.8092	170	52.	896	
AS	II	2634.893	2634.107	10		425		MN	II	2636.63	2635.84	5		328	
CA	III	2634.924	2634.139	360	9.	64		CO	II	2636.64	2635.85	1		825	
CR	I	2635.01	2634.23	4		341		FE	I	2636.717	2635.932	5		896	M
CR	II	2635.02	2634.27	12		340		NE	I	2636.757	2635.971	6		896	M
V	II	2635.15	2634.37	3		478		V	II	2636.78	2636.00	5	214.	478	
CO	II	2635.23	2634.44	1		825		CO	II	2636.80	2636.02	20		825	
F	IV	2635.27	2634.49	1		173		NE	II	2636.855	2636.069	90		563	
FE	I	2635.525	2634.740	3		896	M	CO	II	2636.862	2636.076	1		825	
F	III	2635.618	2634.833	110		537		CR	I	2636.879	2636.094	5	19.	341	
CR	II	2635.62	2634.84	2		340		MN	I	2636.916	2636.131	2		148	
FE	V	2635.64	2634.86			229	F	MN	II	2636.99	2636.20	20		328	
V	I	2635.648	2634.864	8		1000		CU	III	2637.044	2636.258	1		724	
CO	II	2635.710	2634.925	15		825		AS	II	2637.113	2636.327	3		425	
CU	I	2635.718	2634.933	30	40.	672		AR	II	2637.1444	2636.3586	20		867	
CL	II	2635.733	2634.948	56		613		CO	I	2637.150	2636.365	5		603	
K	III	2635.89	2635.11	60	8.	488		CO	II	2637.16	2636.37	10		825	
FE	II	2635.911	2635.127	0	296.	488		V	IV	2637.186	2636.401	30		829	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2637.19	2636.40	2		478		MN	II	2638.959	2638.173	320	19.	328	H
CR	II	2637.25	2636.46	10	62.	340		AL	II	2638.967	2638.182	2	14.	488	
FE	I	2637.2639	2636.4781	30	51.	896		P	II	2638.995	2638.209	60	4.	496	
CU	II	2637.4048	2636.6190	4		612		AL	II	2639.048	2638.263	25	14.	488	
MN	II	2637.454	2636.668	40		328		NE	II	2639.075	2638.289	80		563	
FE	II	2637.472	2636.687	5	356.	488		NI	II	2639.122	2638.336	2		835	
CR	II	2637.48	2636.70	3		340		CU	III	2639.179	2638.393	1		724	
P	II	2637.542	2636.756	90	4.	496		HE	I	2639.248	2638.462	M		497	
NI	II	2637.610	2636.824	75		835		ZN	III	2639.27	2638.48	10		162	
S	III	2637.67	2636.88	200	19.	323		V	II	2639.31	2638.52	7		478	
CR	I	2637.67	2636.89	4	19.	341		CR	II	2639.31	2638.53	3	324.	340	
CU	III	2637.677	2636.891	0		724		AL	II	2639.332	2638.547	1	14.	488	
AR	II	2637.6976	2636.9117	30		867		NE	II	2639.343	2638.560	70		563	
V	IV	2637.722	2636.936	10		829		MN	II	2639.353	2638.567	80		328	
NE	II	2637.728	2636.942	60		563		AL	II	2639.410	2638.625	2	14.	488	
P	III	2637.807	2637.021	60		936		FE	I	2639.441	2638.655	10		896	M
FE	I	2637.840	2637.054	2		896	M	AL	II	2639.480	2638.695	15	14.	488	
MN	II	2637.948	2637.173	80		328		MN	II	2639.486	2638.700	60		328	
CR	I	2637.952	2637.168	4	19.	341		NE	III	2639.49	2638.70	200		1031	
CR	II	2637.98	2637.20	10	62.	340		TI	II	2639.49	2638.70	10	29.	488	
CO	II	2637.99	2637.21	1		825		FE	I	2639.497	2638.711	5		896	M
V	I	2638.007	2637.222	20		1000		CU	III	2639.512	2638.726	15		724	
V	II	2638.04	2637.25	6		478		V	II	2639.53	2638.74	2		478	
CO	II	2638.13	2637.35	10		825		FE	I	2639.533	2638.747	15		896	M
NA	III	2638.24	2637.46	1		516		MN	II	2639.61	2638.82	15		328	
CR	II	2638.26	2637.48	20	198.	340		CR	III	2639.667	2638.882	4		893	
FE	II	2638.284	2637.497	5	410.	896		CR	I	2639.677	2638.892	15		341	
V	II	2638.408	2637.623	2		478		S	V	2639.68	2638.89	400		51	
FE	II	2638.430	2637.644	15	221.	896	L H	F	III	2639.803	2639.017	300		537	
AS	II	2638.476	2637.690	10		425		MN	II	2639.815	2639.029	20		328	
AL	II	2638.481	2637.696	40	14.	488		CR	II	2639.84	2639.05	8		340	
NE	II	2638.623	2637.837	20		563		CO	II	2639.87	2639.08	1		825	
V	II	2638.671	2637.886	2		478		NE	III	2639.97	2639.18	100		1031	
MN	II	2638.675	2637.889	100		328		MN	II	2640.006	2639.220	15		328	
CR	II	2638.71	2637.92	2		340		V	II	2640.08	2639.29	2		478	
CR	II	2638.84	2638.05	5	64.	340		CR	II	2640.11	2639.32	8	216	340	
NE	II	2638.882	2638.096	70		563		NI	II	2640.144	2639.358	140		835	
S	II	2638.9	2638.1	100	11.	285		F	III	2640.173	2639.387	250		537	
SC	XIII	2638.9	2638.1			913	F P	CR	I	2640.21	2639.42	7		341	
MN	II	2638.91	2638.13	5	19.	328		CR	I	2640.33	2639.54	5		341	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SC	III	2640.332	2639.546	4	855		FE	III	2642.194	2641.408	60		
FE	II	2640.351	2639.564	12	896	H	MN	II	2642.20	2641.41	3		
MN	II	2640.51	2639.72	20	328		ZN	III	2642.21	2641.42	5		
MN	II	2640.636	2639.849	70	328	52.	C	II	2642.212	2641.425	150	32.	20.
CR	II	2640.70	2639.91	7	323.	340	NE	II	2642.311	2641.524	70		563
NE	I	2640.76	2639.97	15	723		CU	III	2642.324	2641.537	50		724
CR	II	2640.79	2640.00	7	340	216.	CU	I	2642.336	2641.550	5		672
CR	I	2640.841	2640.056	7	341	20.	FE	I	2642.4326	2641.6456	50	50.	896
CU	II	2640.9057	2640.1190	1	612		NI	II	2642.577	2641.790	50		835
CR	I	2641.007	2640.221	5	341	81.	CR	II	2642.58	2641.80	25	242.	340
V	I	2641.053	2640.267	7	1000		ZN	III	2642.70	2641.91	5		162
CU	III	2641.083	2640.297	1	724		FE	II	2642.800	2642.013	8	309.	896
MN	I	2641.129	2640.340	1	148		CR	I	2642.904	2642.118	20	66.	341
AR	IV	2641.13	2640.34	150	488	5.	TI	II	2642.94	2642.15	20	29.	498
ZN	III	2641.13	2640.34	500	162		V	II	2642.998	2642.212	80	89.	478
CR	II	2641.24	2640.45	2	340	323.	MN	II	2643.022	2642.235	40		328
CO	II	2641.30	2640.48	M	825		NE	III	2643.04	2642.25	40		1031
C	II	2641.347	2640.560	90	287	32.	FE	I	2643.061	2642.274	0	51.	378
NE	III	2641.35	2640.56	120	1031		CL	II	2643.064	2642.277	9		613
MN	I	2641.405	2640.619	4	148	25.	V	I	2643.076	2642.289	4	13.	1000
F	IV	2641.42	2640.63	4	173		C	II	2643.118	2642.331	25	32.	287
NE	II	2641.454	2640.667	60	563		MN	I	2643.190	2642.403	3		148
V	I	2641.470	2640.684	6	1000		NE	III	2643.21	2642.42	60		1031
CR	III	2641.515	2640.729	350	893		NE	I	2643.26	2642.47	8		723
SI	III	2641.575	2640.788	200	768	86.	P	IV	2643.278	2642.491	10		937
V	II	2641.65	2640.86	80	478	213.	MN	II	2643.30	2642.51	10		328
MN	I	2641.671	2640.887	1	148		CR	II	2643.39	2642.60	2	330.	340
C	II	2641.681	2640.894	60	287	32.	V	II	2643.51	2642.72	6	199.	478
NI	II	2641.757	2640.970	10	835		MN	II	2643.563	2642.775	40		328
FE	I	2641.815	2641.029	6	896		CO	I	2643.670	2642.884	10		603
NE	III	2641.86	2641.07	200	1031		FE	II	2643.768	2642.982	1	426.	488
FE	I	2641.870	2641.084	8	896	M	CR	II	2643.81	2643.02	5	104.	340
CR	II	2641.88	2641.09	3	340		MN	II	2643.852	2643.065	50		328
TI	I	2641.902	2641.116	400	488	5.	V	II	2643.90	2643.11	2		478
NI	II	2641.904	2641.117	40	835		V	I	2643.93	2643.14	5	13.	1000
FE	II	2641.910	2641.123	5	896	144.	NI	I	2643.932	2643.146	10	72.	488
F	III	2641.951	2641.164	200	537		V	I	2643.98	2643.19	5		1000
CU	III	2642.009	2641.222	1	724		CR	II	2644.10	2643.31	1	323.	340
CR	II	2642.09	2641.30	15	340	323.	N	II	2644.200	2643.413	20	50.	200
V	III	2642.09	2641.30	15	325		C	II	2644.214	2643.427	25	32.	287

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2644.33	2643.54	12	123.	340		V	I	2646.043	2645.256	10	13.	1000	
NE	II	2644.414	2643.627	60		563		CR	I	2646.09	2645.30	2	19.	341	
FE	II	2644.434	2643.647	3		896		CU	I	2646.090	2645.303	20	42.	672	
NE	II	2644.471	2643.684	60		563		FE	II	2646.122	2645.334	3	426.	896	
V	II	2644.48	2643.69	4		478		V	I	2646.130	2645.343	5		1000	
AR	II	2644.52	2643.74	10		506		FE	III	2646.17	2645.39	200		188	
MN	II	2644.543	2643.756	50		328		FE	I	2646.2095	2645.4216	10	6.	896	
CU	I	2644.620	2643.834	1		672		NE	I	2646.30	2645.51	30		1029	
MN	II	2644.68	2643.89	20		328		SI	II	2646.327	2645.539	0	25.	678	
CU	III	2644.711	2643.923	170	29.	724		V	IV	2646.329	2645.541	80		829	
N	II	2644.72	2643.93	5	50.	200		NE	II	2646.433	2645.645	50		563	
FE	I	2644.7855	2643.9980	140	52.	896		N	IV	2646.44	2645.65	450	19.	824	
MN	II	2644.85	2644.06	20		328		CR	II	2646.53	2645.71	2		340	
NE	II	2644.885	2644.097	80		563		SC	IV	2646.586	2645.799	110		720	
CR	I	2644.91	2644.12	5		341		V	II	2646.627	2645.840	80	89.	478	
MN	II	2644.91	2644.12	5		328		FE	II	2646.698	2645.911	1	410.	488	
GE	I	2644.9712	2644.1836	80	24.	7		CU	III	2646.702	2645.914	2	29.	724	
CR	II	2644.98	2644.19	3		340		V	I	2646.777	2645.990	2		1000	
CR	I	2645.02	2644.23	7	19.	341		MN	II	2646.78	2645.99	20		328	
TI	I	2645.062	2644.275	400	5.	488		N	II	2646.80	2646.02	1	50.	200	
P	IV	2645.083	2644.295	400		937		FE	I	2646.820	2646.032	10		896	M
V	II	2645.150	2644.363	100	213.	478		TI	II	2646.87	2646.08	50	29.	488	
FE	I	2645.416	2644.628	6		896	M	FE	I	2646.886	2646.098	5		896	M
CR	I	2645.42	2644.63	1		341		NE	II	2646.966	2646.178	40		563	
V	I	2645.477	2644.690	1		1000		N	IV	2646.97	2646.18	550	19.	824	
NI	II	2645.514	2644.726	10		835		CU	I	2646.981	2646.194	1		672	
CO	I	2645.559	2644.772	10	111.	603		FE	II	2646.993	2646.206	5	237.	488	
FE	V	2645.57	2644.78			229	F	MG	I	2646.994	2646.206	5	12.	1017	
MG	I	2645.589	2644.801	3	12.	1017		V	II	2647.012	2646.225	2		478	
HE	I	2645.589	2644.802	2		497		CU	III	2647.171	2646.383	15		724	
CR	II	2645.59	2644.80	2		340		CO	I	2647.200	2646.413	10	53.	603	
V	IV	2645.734	2644.946	8		829		NI	II	2647.224	2646.436	3		835	
CR	III	2645.744	2644.957	10	65.	893		NI	II	2647.371	2646.583	2		835	
FE	II	2645.871	2645.083	5	309.	896		CR	II	2647.39	2646.60	2	104.	340	
FE	II	2645.871	2645.084	40	263.	488		F	II	2647.421	2646.633	40		538	
AS	II	2645.916	2645.128	10		425		TI	I	2647.438	2646.650	400	5.	488	
MN	I	2645.955	2645.168	1		148		FE	II	2647.480	2646.692	1	220.	488	
CR	II	2645.97	2645.18	2		340		FE	III	2647.538	2646.751	90	91.	188	
FE	II	2645.978	2645.191	20	421.	488		CR	I	2647.61	2646.82	1		341	
F	III	2646.000	2645.212	50		537		CL	II	2647.636	2646.848	100		613	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
N	II	2647.66	2646.87	1	50.	200		TI	I	2649.44	2648.65	10	4.	488	
NI	II	2647.683	2646.895	140	63.	835		CO	II	2649.451	2648.662	25		825	
CL	II	2647.687	2646.898	120	.	613		FE	II	2649.492	2648.704	1	409.	488	
N	IV	2647.74	2646.96	650	19.	824		NI	II	2649.508	2648.719	10	17.	835	
CR	II	2647.83	2647.04	2	323.	340		FE	XI	2649.52	2648.73	255		940	FH
CR	II	2648.01	2647.22	2		340		MN	I	2649.588	2648.800	3		148	
AR	II	2648.035	2647.247	60		506		V	I	2649.679	2648.891	6		1000	
MN	II	2648.10	2647.31	2		328		MN	II	2649.728	2648.938	100	53.	328	
FE	I	2648.178	2647.390	1		378		CR	II	2649.74	2648.95	2	166.	340	
NE	I	2648.21	2647.42	150		723		F	III	2649.789	2649.000	110		537	
F	III	2648.237	2647.449	80		537		V	III	2649.80	2649.01	20		325	
CR	III	2648.29	2647.50	50		490		MG	I	2649.851	2649.062	7	12.	1017	
FE	I	2648.3459	2647.5575	20	6.	896		MN	II	2649.87	2649.08	5		328	
MN	II	2648.412	2647.624	80	53.	328		FE	I	2650.010	2649.222	2		896	M
V	I	2648.497	2647.710	40	13.	1000		TI	I	2650.094	2649.306	40		488	N
NE	I	2648.55	2647.76	8		723		V	II	2650.16	2649.37	150	213.	478	
CL	II	2648.566	2647.777	57		613		MN	II	2650.213	2649.424	30		328	
MN	II	2648.600	2647.811	40		328		NI	II	2650.225	2649.436	40		835	
AR	II	2648.632	2647.844	10		506		FE	II	2650.258	2649.469	6	427.	896	
AS	II	2648.670	2647.881	0		425		ZN	II	2650.290	2649.502	8		154	
FE	I	2648.707	2647.918	12		896	M	CU	III	2650.308	2649.519	20		724	
MN	II	2648.846	2648.056	80		328		TI	I	2650.385	2649.597	30		488	N
CR	II	2648.85	2648.08	15	142.	340		AR	II	2650.3903	2649.6014	40		867	
FE	II	2648.947	2648.159	0	355.	488		CR	II	2650.45	2649.66	7	166.	340	
FE	I	2648.953	2648.164	1	99.	378		NI	II	2650.499	2649.710	1		835	
CR	I	2648.96	2648.17	2		341		CU	I	2650.628	2649.840	30	41.	672	
F	IV	2648.97	2648.18	1		173		CR	II	2650.68	2649.89	1	104.	340	
CL	II	2648.976	2648.187	58		613		CO	I	2650.719	2649.931	50	112.	603	
NE	I	2649.00	2648.21	15		723		V	II	2650.924	2650.136	1		478	
CR	II	2649.09	2648.30	8	323.	340		CO	I	2651.054	2650.266	50	53.	603	
MN	II	2649.129	2648.339	20		328		CR	II	2651.17	2650.38	2	64.	340	
AS	II	2649.162	2648.373	0		425		V	II	2651.20	2650.41	3		478	
FE	I	2649.235	2648.446	2		896	M	BE	I	2651.243	2650.454	60	2.	333	
V	II	2649.263	2648.475	30	192.	478		FE	II	2651.270	2650.481	2	410.	896	
FE	I	2649.336	2648.548	1		378		BE	I	2651.339	2650.550	40	2.	333	
NE	I	2649.35	2648.56	25		723		CR	II	2651.36	2650.57	1		340	
CU	II	2649.3945	2648.6059	2		612		CR	III	2651.370	2650.581	10		893	
CO	I	2649.423	2648.635	5	53.	603		V	I	2651.396	2650.608	3		1000	
CO	II	2649.43	2648.64	40		825		BE	I	2651.402	2650.613	1	2.	333	
MN	II	2649.43	2648.64	20		328		V	IV	2651.402	2650.613	8		829	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
BE	I	2651.408	2650.619	80	2.	333		V	II	2653.55	2652.76	20			478
BE	I	2651.483	2650.694	40	2.	333		CO	II	2653.56	2652.77	5			825
BE	I	2651.549	2650.760	60	2.	333		CR	II	2653.57	2652.78	3	330.		340
CR	II	2651.59	2650.80	7	143.	340		CO	II	2653.62	2652.83	8			825
NI	II	2651.645	2650.856	10		835		HE	I	2653.638	2652.848	3			497
MN	II	2651.789	2651.000	80		328		CU	III	2653.644	2652.854	3			724
NE	I	2651.80	2651.01	30		1029	Q	AR	II	2653.689	2652.899	10			506
MN	II	2651.826	2651.036	80	52.	328		V	I	2653.708	2652.919	20	99.	1000	
CR	II	2651.94	2651.15	1		340		ZN	II	2653.733	2652.944	10			154
GE	I	2651.9613	2651.1720	150	1.	7		TI	I	2653.81	2653.02	20	4.		488
CL	III	2651.98	2651.19	300	12.	43		P	III	2653.838	2653.048	4			936
NE	II	2652.043	2651.254	70		563		CU	III	2653.865	2653.075	3			724
FE	II	2652.059	2651.270	3.	237.	896		CO	II	2653.89	2653.10	1	13.		825
CR	I	2652.091	2651.303	7		341		ZN	III	2653.95	2653.16	35			162
NI	II	2652.198	2651.408	1		835		MN	II	2653.96	2653.17	1			328
CR	II	2652.21	2651.42	4	323.	340		F	III	2653.991	2653.201	110			537
CU	I	2652.229	2651.440	1		672		AR	II	2654.00	2653.21	0			506
F	III	2652.266	2651.477	200		537		CR	II	2654.04	2653.25	4	330.		340
GE	I	2652.3577	2651.5683	120	1.	7		CR	III	2654.067	2653.278	4			893
V	II	2652.36	2651.57	5	213.	478		CO	II	2654.20	2653.41	1			825
F	III	2652.465	2651.676	250		537		F	III	2654.242	2653.452	300			537
CU	I	2652.482	2651.693	10	41.	672		FE	II	2654.347	2653.557	2	432.		896
FE	I	2652.4959	2651.7063	25	51.	896		AS	II	2654.351	2653.561	5			425
FE	II	2652.50	2651.71	25	355.	896		CR	II	2654.36	2653.57	85	8.		340
FE	II	2652.615	2651.826	1	427.	488		MN	II	2654.361	2653.571	60			328
MN	II	2652.657	2651.868	40		328		FE	II	2654.457	2653.667	2	432.		896
V	I	2652.685	2651.896	50	13.	1000		CO	II	2654.503	2653.713	30	20.		825
AR	II	2652.695	2651.906	20		506		F	III	2654.528	2653.738	375			537
F	III	2652.721	2651.932	150		537		V	I	2654.613	2653.824	25	99.	1000	
CR	II	2652.79	2652.00	30		340		CU	I	2654.69	2653.90	1			672
CU	I	2652.853	2652.065	2		672		V	I	2654.794	2654.005	2			1000
CU	III	2652.884	2652.095	4		724		CO	II	2654.80	2654.01	3			825
CO	II	2652.96	2652.17	3		825		CR	II	2654.81	2654.02	4	330.		340
CR	II	2653.08	2652.29	4		340		SE	III	2654.83	2654.04	150			587
CR	I	2653.23	2652.44	4		341		AR	II	2654.846	2654.056	20			506
AL	I	2653.264	2652.475	160	1.	198		NE	II	2655.091	2654.301	10			563
MN	II	2653.286	2652.497	140	53.	328		V	III	2655.15	2654.36	60			325
FE	II	2653.356	2652.566	2	237.	896		V	II	2655.18	2654.39	3			478
NE	II	2653.383	2652.593	50		563		NI	II	2655.182	2654.392	1			835
SI	V	2653.48	2652.69	100		941		ZN	III	2655.20	2654.41	15			162

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	I	2655.201	2654.412	10		341		F	III	2657.061	2656.270	250		537	
MN	II	2655.21	2654.42	10		328		AR	II	2657.094	2656.303	20		506	
NI	II	2655.250	2654.460	3		835		MN	II	2657.11	2656.32	30		328	
MN	II	2655.415	2654.625	20		328		CO	II	2657.16	2656.37	00		825	
FE	II	2655.419	2654.629	5	410.	896		TI	I	2657.166	2656.376	40		488	N
MN	I	2655.613	2654.824	1		148		F	III	2657.233	2656.442	450		537	
CR	II	2655.63	2654.84	1		340		CU	III	2657.283	2656.493	0		724	
CR	I	2655.633	2654.844	5	95.	341		CO	II	2657.29	2656.50	1		825	
V	II	2655.68	2654.89	2		478		V	I	2657.34	2656.55	10		1000	
SE	III	2655.71	2654.92	10		587		CO	II	2657.43	2656.64	2		825	
TI	I	2655.718	2654.928	50	4.	488		SE	III	2657.47	2656.68	10		587	
F	III	2655.757	2654.967	80		537		FE	I	2657.5826	2656.7920	12	99.	896	
CR	I	2655.84	2655.05	4	95.	341		V	IV	2657.659	2656.868	50		829	
ZN	III	2655.89	2655.10	10		162		TI	I	2657.711	2656.920	40		488	N
FE	I	2655.93	2655.14	1	100.	605		CR	II	2657.92	2657.13	8		340	
CR	III	2656.054	2655.264	200		893		FE	II	2657.961	2657.171	3	432.	896	
FE	III	2656.076	2655.286	40		288		TI	I	2657.977	2657.186	100	3.	488	
TI	II	2656.09	2655.30	M		601		CR	I	2658.02	2657.23	1		341	
NI	II	2656.135	2655.345	120	66.	835		LI	II	2658.084	2657.293	40		307	
CA	III	2656.172	2655.382	160		64		V	II	2658.085	2657.295	10	88.	478	
FE	II	2656.186	2655.396	0	374.	488		LI	II	2658.094	2657.303	60		307	
V	IV	2656.198	2655.408	50		829		CO	I	2658.129	2657.340	0		603	
SI	III	2656.302	2655.512	315	84.	768		AL	I	2658.197	2657.406	15		198	
V	II	2656.47	2655.68	200	213.	478		P	III	2658.235	2657.445	1		936	
FE	II	2656.483	2655.692	8		896		CU	III	2658.276	2657.485	3		724	
CU	III	2656.560	2655.769	10		724		MN	I	2658.318	2657.528	1		148	
NI	II	2656.560	2655.769	120	63.	835		CR	II	2658.32	2657.53	15		340	
CR	II	2656.57	2655.78	10	103.	340		NE	I	2658.345	2657.554	12		896	
MN	I	2656.577	2655.787	10	15.	148		FE	II	2658.378	2657.589	6		896	
SI	II	2656.593	2655.803	3	25.	678		FE	I	2658.411	2657.621	3		896	M
MN	II	2656.611	2655.820	40		328		V	I	2658.498	2657.708	5	11.	1000	
AS	II	2656.628	2655.838	0		425		AR	II	2658.68	2657.89	0		506	
MN	II	2656.714	2655.924	170	52.	328		MN	I	2658.688	2657.898	8		148	
CU	II	2656.7551	2655.9646	1		612		FE	II	2658.712	2657.921	3	283.	896	
F	III	2656.779	2655.989	80		537		V	II	2658.76	2657.97	1		478	
CR	I	2656.82	2656.02	4	19.	341		CR	III	2658.813	2658.022	1		893	
FE	I	2656.938	2656.147	40	156.	896		V	III	2658.85	2658.06	1		325	
MN	II	2656.961	2656.170	140	70.	328		ZN	III	2658.94	2658.15	30		162	
V	I	2657.014	2656.224	60	13.	1000		FE	II	2659.043	2658.252	10	309.	896	
CO	II	2657.06	2656.27	2		825		ZN	III	2659.07	2658.28	15		162	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	III	2659.105	2658.314	20		724		MN	II	2661.20	2660.41	3		328	
CR	II	2659.13	2658.34	2		340		P	II	2661.22	2660.42	0		431	
MN	I	2659.139	2658.349	2	15.	148		CR	III	2661.31	2660.52	30		490	
FE	I	2659.269	2658.478	8		896	M	MN	II	2661.413	2660.621	40		328	
V	II	2659.28	2658.49	7	213.	478		TI	I	2661.45	2660.66	10	4.	468	
CR	II	2659.38	2658.59	100	8.	340		MN	II	2661.54	2660.75	0		328	
V	III	2659.41	2658.62	15		325		MG	II	2661.544	2660.755	40	4.	488	
ZN	III	2659.44	2658.65	50		162		CR	II	2661.56	2660.77	8	164.	340	
CL	II	2659.514	2658.723	310	7.	613		FE	III	2661.605	2660.815	40		188	
CO	II	2659.516	2658.725	M		825		MG	II	2661.610	2660.821	60	4.	488	
CU	III	2659.613	2658.822	3		724		CO	II	2661.63	2660.84	M		825	
CR	II	2659.70	2658.91	40	141.	340		MN	II	2661.63	2660.84	5		328	
FE	I	2659.737	2658.946	3		896	M	NA	II	2661.767	2660.997	120	11.	693	
V	II	2659.76	2658.97	30	88.	478		NI	II	2661.797	2661.006	1		835	
FE	II	2659.843	2659.054	1	237.	488		MN	II	2661.80	2661.01	2		328	
MN	II	2659.881	2659.090	80		328		MN	II	2661.93	2661.14	10		328	
CO	II	2659.96	2659.17	0		825		MN	I	2661.96	2661.20	2		148	
S	V	2659.98	2659.19	200		51		FE	I	2661.9828	2661.1911	8		896	
FE	I	2660.041	2659.249	4		896	M	CR	II	2662.01	2661.22	50	50.	340	
MN	II	2660.061	2659.270	50		328		V	II	2662.033	2661.243	3	329.	478	
SE	III	2660.17	2659.38	1		587		FE	I	2662.096	2661.305	12		896	M
CR	II	2660.26	2659.47	10	103.	340		BR	IV	2662.19	2661.40	150		574	
NI	II	2660.289	2659.498	120		835		CR	II	2662.20	2661.41	7	62.	340	
CU	I	2660.35	2659.57	2		672		FE	I	2662.207	2661.416	8		896	M
F	III	2660.367	2659.576	50		537		V	I	2662.215	2661.424	70	13.	1000	
V	II	2660.39	2659.60	25	112.	478		MN	II	2662.22	2661.42	2		328	
FE	III	2660.404	2659.614	40	91.	188		V	II	2662.26	2661.47	30		478	
CL	II	2660.46	2659.67	6		345		CR	II	2662.38	2661.59	10	62.	340	
ZN	III	2660.47	2659.68	100		162		O	III	2662.402	2661.612	1		1032	
CR	II	2660.52	2659.73	8	268.	340		CL	III	2662.44	2661.65	500	16.	38	
SI	II	2660.572	2659.781	5	25.	678		ZN	III	2662.45	2661.66	5		162	
GA	I	2660.662	2659.873	40	2.	488		CO	I	2662.505	2661.714	2		603	
MN	II	2660.73	2659.94	20		328		CO	II	2662.51	2661.72	5		825	
CR	I	2660.797	2660.006	8	58.	341		CR	II	2662.52	2661.73	50	8.	340	
CU	III	2660.920	2660.128	2		724		MN	II	2662.55	2661.76	5		328	
FE	II	2661.027	2660.236	5	429.	896		FE	II	2662.563	2661.771	6	429.	896	
MN	II	2661.083	2660.292	40		328		ZN	III	2662.64	2661.85	15		162	
S	II	2661.1	2660.3	100	11.	285		TI	I	2662.756	2661.966	100	2.	488	
AL	I	2661.178	2660.386	160	1.	198		MN	II	2662.76	2661.97	40	52.	328	
FE	I	2661.1888	2660.3973	15	51.	896		MN	II	2662.790	2661.998	3		328	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	II	2662.82	2662.03			825		FE	I	2664.835	2664.043	15		896	
FE	I	2662.8480	2662.0562	30	50.	896		SC	IV	2664.848	2664.058	160		720	
CR	II	2662.94	2662.15	4	62.	340		CO	II	2664.95	2664.16	1		825	
CL	III	2663.08	2662.29	300	16.	38		FE	I	2664.960	2664.168	12		896	M
CR	I	2663.08	2662.29	2		341		FE	II	2664.999	2664.209	20	237.	468	
FE	I	2663.096	2662.304	20		896	M	FE	II	2665.052	2664.260	6	427.	896	
FE	III	2663.122	2662.331	40		188		CR	II	2665.07	2664.28	2		340	
CO	II	2663.25	2662.46	1		825		F	III	2665.123	2664.331	300		537	
CU	I	2663.26	2662.47	1		672		CR	I	2665.24	2664.44	7	8.	341	
MN	II	2663.330	2662.538	140	70.	328		MN	II	2665.26	2664.47	10		328	
FE	II	2663.350	2662.558	5	410.	896		CO	II	2665.41	2664.62	1		825	
CO	II	2663.44	2662.64	1		825		FE	II	2665.456	2664.663	60	263.	896	H
CR	II	2663.51	2662.72	7	165.	340		CR	I	2665.609	2664.818	3		341	
MN	II	2663.56	2662.76	4		328		ZN	III	2665.70	2664.91	10		162	
CU	I	2663.56	2662.77	1		672		F	III	2665.702	2664.910	50		537	
MN	II	2663.57	2662.78	15		328		SC	IV	2665.760	2664.970	5		720	
ZN	III	2663.57	2662.78	15		162		GA	I	2665.84	2665.05	450	3.	488	
FE	I	2663.693	2662.901	3		896	M	MN	I	2665.856	2665.064	4		148	
CR	III	2663.704	2662.914	10		893		CR	I	2665.89	2665.10	5		341	
AS	II	2663.778	2662.986	5		425		CO	II	2665.92	2665.13	5		825	
CR	II	2663.81	2663.02	10	165.	340		MN	II	2665.972	2665.179	80	62.	328	
FE	I	2663.957	2663.165	2		896		NI	II	2666.045	2665.252	50	45.	835	
CL	III	2663.99	2663.20	300		43		V	II	2666.069	2665.277	3	14.	479	
NI	II	2664.012	2663.220	3		835		FE	II	2666.128	2665.337	1	432.	488	
V	II	2664.04	2663.25	230	213.	478		FE	III	2666.144	2665.351	40		288	
FE	II	2664.050	2663.260	3	432.	896		CU	III	2666.177	2665.384	3		724	
HE	I	2664.063	2663.271	4		497		S	III	2666.19	2665.40	350	19.	323	
CR	II	2664.07	2663.28	30	329.	340		S	V	2666.21	2665.42	100		51	
FE	I	2664.135	2663.343	10		896	M	V	II	2666.281	2665.490	2		478	
CR	II	2664.21	2663.42	75	8.	340		P	III	2666.315	2665.523	1		936	
V	II	2664.317	2663.526	4	207.	478		CL	III	2666.33	2665.54	600	16.	38	
CO	II	2664.320	2663.528	50	13.	825		FE	II	2666.333	2665.541	15	428.	896	
ZN	III	2664.33	2663.54	30		162		CR	II	2666.37	2665.58	30	329.	340	
CR	II	2664.46	2663.67	45	8.	340		F	III	2666.502	2665.709	30		537	
MN	II	2664.53	2663.74	25		328		O	III	2666.54	2665.78	120	22.	488	P
FE	I	2664.572	2663.779	3		896	M	P	IV	2666.562	2665.769	10		937	
V	II	2664.628	2663.837	2		478		NI	II	2666.645	2665.852	15		835	
FE	II	2664.737	2663.945	5	428.	896		NI	II	2666.743	2665.950	100		835	
P	III	2664.770	2663.978	90		936		V	I	2666.750	2665.958	20	12.	1000	
MN	II	2664.828	2664.035	100		328		CR	II	2666.81	2666.02	80	8.	340	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2666.89	2666.10	20		328	MN	II	2668.640	2667.849	60		328
CO	II	2666.92	2666.13	3		825	NE	II	2668.674	2667.881	60		563
CU	II	2667.0837	2666.2908	200	130.	612	MN	I	2668.674	2667.882	1		148
MN	II	2667.17	2666.38	40		328	CR	II	2668.68	2667.89	25	329.	340
FE	I	2667.1915	2666.3986	25	50.	896	FE	I	2668.7058	2667.9125	12	6.	896
NI	II	2667.216	2666.423	50		835	V	II	2668.80	2668.01	10	199.	478
CL	II	2667.247	2666.454	61	12.	613	CO	I	2668.88	2668.08	1		603
FE	I	2667.248	2666.455	8		896	MG	I	2668.917	2668.124	15	11.	1017
V	II	2667.29	2666.50	1		478	MN	II	2668.97	2668.25	15		328
CU	I	2667.39	2666.59	2	49.	672	F	III	2668.991	2668.198	200		537
NI	II	2667.409	2666.616	2		835	FE	III	2669.02	2668.23	20		288
FE	II	2667.429	2666.636	30	263.	896	CU	I	2669.12	2668.32	0		672
ZN	II	2667.46	2666.67	40		162	CR	I	2669.120	2668.328	1		341
FE	I	2667.544	2666.751	60		896	TI	I	2669.15	2668.36	10	4.	488
CO	II	2667.55	2666.76	3	28.	825	MN	I	2669.162	2668.370	3		148
MN	II	2667.562	2666.769	170		328	F	III	2669.167	2668.374	110		537
V	II	2667.58	2666.79	10	213.	478	V	II	2669.387	2668.595	4	14.	478
FE	I	2667.6054	2666.8123	170	48.	896	MN	II	2669.422	2668.629	30		328
MN	II	2667.687	2666.894	50	52.	328	CR	II	2669.50	2668.71	70	8.	340
SC	III	2667.700	2666.907	12		855	NE	II	2669.503	2668.710	40		563
NE	II	2667.710	2666.917	10		563	V	I	2669.687	2668.894	3	11.	1000
FE	I	2667.7583	2666.9652	60	100.	896	FE	I	2669.700	2668.910	15		896
MN	II	2667.823	2667.030	170		328	FE	II	2669.730	2668.938	5	429.	488
CR	II	2667.93	2667.21	4		340	FE	I	2669.756	2668.963	5		896
MN	II	2668.008	2667.215	10		328	FE	II	2669.801	2669.008	12	429.	896
FE	I	2668.01	2667.22	1		378	NE	II	2669.851	2669.057	60		563
FE	II	2668.010	2667.220	10	410.	896	CR	II	2669.86	2669.07	3		340
MN	I	2668.055	2667.263	1		148	NE	I	2669.92	2669.13	3		723
CL	II	2668.141	2667.348	93	12.	613	AL	II	2669.958	2669.166	160	1.	488
MN	II	2668.186	2667.393	30		328	NI	II	2670.005	2669.211	15		835
CL	II	2668.191	2667.398	28	12.	613	P	V	2670.024	2669.230	50		524
CU	II	2668.2184	2667.4232	2		612	TI	I	2670.066	2669.274	20	3.	488
V	II	2668.324	2667.532	4	67.	478	MN	II	2670.121	2669.328	80		328
AS	II	2668.426	2667.633	1		425	NE	I	2670.15	2669.36	3		1029
FE	II	2668.426	2667.635	0	430.	488	CR	I	2670.151	2669.359	12	18.	341
MN	II	2668.476	2667.683	20		328	NI	II	2670.159	2669.365	1		835
SC	II	2668.52	2667.73	1		1028	V	IV	2670.277	2669.483	10		829
MN	I	2668.543	2667.751	1		148	FE	I	2670.286	2669.493	25	156.	896
NE	I	2668.63	2667.84	1		1029	B	II	2670.292	2669.498	50		532
V	IV	2668.631	2667.837	1		829	CL	III	2670.31	2669.52	300	16.	38

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MG	I	2670.347	2669.553	25	11.	1017		CL	II	2672.203	2671.408	72	.	613	
CO	I	2670.367	2669.575	2		603		MN	II	2672.30	2671.51	0		328	
MN	II	2670.399	2669.605	50		328		V	I	2672.462	2671.669	10	12.	1000	
TI	I	2670.402	2669.610	150	2.	488		ZN	III	2672.5	2671.7	10		162	
CO	II	2670.51	2669.71	2		825		CR	II	2672.59	2671.80	80	8.	340	
FE	I	2670.516	2669.722	8		896	M	MN	II	2672.605	2671.811	80		328	
CO	II	2670.60	2669.81	100	28.	825		NA	II	2672.624	2671.832	90	10.	693	
FE	II	2670.726	2669.933	2	416.	896		FE	II	2672.716	2671.922	10	432.	896	
C	II	2670.754	2669.960	25	23.	287		CR	I	2672.773	2671.980	10	18.	341	
S	II	2670.77	2670.02	300	11.	285		V	II	2672.798	2672.005	150	3.	478	
O	III	2670.794	2670.002	10		1032		CO	II	2672.85	2672.05	00		825	
CR	II	2670.85	2670.06	30	63.	340		CU	I	2672.85	2672.05	5		672	
SI	II	2670.947	2670.153	0	25.	678		FE	II	2672.92J	2672.139	10	429.	896	
AR	II	2671.02	2670.22	5	.	506		CL	II	2672.971	2672.176	165	6.	613	
CR	II	2671.03	2670.24	25	69.	340		SI	IV	2672.987	2672.193	10	30.	767	
MN	I	2671.030	2670.237	4		148		NE	II	2672.988	2672.194	20	.	563	
V	II	2671.030	2670.237	40	111.	478		FE	II	2673.103	2672.310	1	202.	488	
C	III	2671.034	2670.240	40	32.	34		CR	II	2673.16	2672.37	15	122.	340	
NI	II	2671.120	2670.326	30	45.	835		ZN	III	2673.24	2672.45	5		162	
FE	II	2671.176	2670.384	20	355.	488		MG	I	2673.254	2672.460	40	11.	1017	
MN	I	2671.228	2670.435	4		148		FE	I	2673.275	2672.480	12		896	M
CU	III	2671.275	2670.481	30		724		FE	II	2673.342	2672.548	6	429.	896	
SC	IV	2671.319	2670.527	40		720		MN	II	2673.375	2672.581	320	34.	328	
ZN	I	2671.324	2670.532	4	6.	830		V	III	2673.50	2672.71	1		325	
CR	I	2671.354	2670.562	10		341		FE	I	2673.579	2672.784	3		896	M
NE	II	2671.407	2670.613	70	.	563		CR	II	2673.62	2672.83	90	8.	340	
FE	V	2671.51	2670.72			229	F	MN	I	2673.64	2672.85	1		148	
FE	I	2671.580	2670.786	8		896	M	C	III	2673.750	2672.959	110	32.	34	
CO	II	2671.65	2670.85	4		825		FE	I	2673.861	2673.086	5		896	M
CR	II	2671.69	2670.90	3		340		CU	III	2673.885	2673.090	10		724	
V	I	2671.711	2670.918	7	11.	1000		MN	II	2673.890	2673.095	40		328	
FE	I	2671.786	2670.992	5		896	M	NI	II	2674.001	2673.207	40		835	
CR	II	2671.81	2671.00	2	61.	340		FE	I	2674.0075	2673.2129	15	50.	896	
MN	II	2671.85	2671.06	8		328		V	II	2674.04	2673.25	50		478	
MN	II	2671.89	2671.10	10		328		MN	II	2674.174	2673.379	140	52.	328	
CR	I	2671.96	2671.17	2		341		NE	II	2674.217	2673.422	60	.	563	
CU	I	2671.989	2671.204	20	49.	672		CR	II	2674.28	2673.49	3	278.	340	
F	III	2672.076	2671.282	50	*	537		FE	V	2674.40	2673.61			229	F
C	III	2672.110	2671.318	70	32.	34		CR	I	2674.438	2673.644	12	18.	341	
FE	II	2672.196	2671.404	20	410.	488		MN	I	2674.444	2673.651	1		148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	V	2674.61	2673.82			229	F	NE	I	2676.43	2675.64	100	13.	488	
CO	I	2674.711	2673.918	25		803		CR	II	2676.46	2675.67	20	69.	340	
CO	II	2674.73	2673.93	M		825		CR	II	2676.53	2675.74	15	292.	340	
V	II	2674.749	2673.955	4	14.	478		V	I	2676.547	2675.753	8	12.	1000	
CR	II	2674.76	2673.97	8	329.	340		N	II	2676.57	2675.78	20	52.	200	
CR	II	2674.86	2674.07	8	329.	340		MN	II	2676.64	2675.85	10		328	
AR	II	2674.965	2674.170	20		506		NE	II	2676.642	2675.847	30		563	
ZN	III	2674.98	2674.19	20		162		CO	II	2676.70	2675.90	10	28.	825	
NE	II	2675.013	2674.219	5		563		CR	I	2676.748	2675.955	3		341	
CR	II	2675.05	2674.26	7	329.	340		V	I	2676.771	2675.977	4	72.	1000	
V	II	2675.07	2674.28	3		478		CO	I	2676.774	2675.980	10	53.	603	
FE	III	2675.214	2674.419	5		288		SC	II	2676.79	2676.00	1		1028	
MN	II	2675.235	2674.440	220	63.	328		V	II	2676.84	2676.05	9	213.	478	
LI	II	2675.255	2674.460	40	4.	307		CU	II	2676.8615	2676.0663	5		612	
SE	III	2675.29	2674.50	10		587		FE	I	2676.874	2676.078	6		896	M
F	III	2675.325	2674.530	150		537		TI	I	2676.88	2676.09	10	4.	488	
CR	III	2675.362	2674.569	25		893		MN	I	2676.884	2676.090	3		148	
O	III	2675.42	2674.63	150	22.	488	P	FE	I	2676.955	2676.159	1		896	
CU	III	2675.441	2674.646	10		724		NI	II	2677.026	2676.231	2		835	
FE	I	2675.5095	2674.7146	2	140.	896		NE	II	2677.036	2676.241	40		563	
NE	II	2675.547	2674.752	60		563		P	III	2677.077	2676.281	60		936	
MN	II	2675.552	2674.756	100		328		V	II	2677.12	2676.33	7	213.	478	
NI	II	2675.643	2674.848	50		835		MN	I	2677.120	2676.326	10	15.	148	
MN	II	2675.652	2674.858	30	52.	328		CU	II	2677.1734	2676.3781	2		612	
FE	I	2675.778	2674.983	2		896	M	FE	I	2677.219	2676.423	2		896	M
MN	II	2675.780	2674.985	140	52.	328		CU	I	2677.222	2676.428	20	53.	672	
FE	III	2675.913	2675.118	40		208		MN	II	2677.244	2676.450	20		328	
SI	IV	2675.915	2675.120	160	25.	767		CR	II	2677.32	2676.53	5	141.	340	
MN	II	2675.925	2675.130	30		328		MN	II	2677.373	2676.578	40		328	
V	II	2675.96	2675.17	2		478		V	I	2677.430	2676.636	3	72.	1000	
CR	II	2676.04	2675.25	6		340		FE	V	2677.50	2676.71			229	F
SI	IV	2676.044	2675.249	160	25.	767		MN	II	2677.551	2676.756	40		328	
NE	I	2676.070	2675.275	15	13.	896		FE	II	2677.678	2676.983	6		896	
P	I	2676.102	2675.307	50	7.	496		CL	II	2677.747	2676.951	270	6.	613	
F	III	2676.186	2675.391	110		537		V	II	2677.79	2677.00	1		478	
CL	III	2676.2	2675.4	200		43		NE	I	2677.814	2677.020	1		723	
FE	II	2676.235	2675.440	1		896		CO	I	2677.815	2677.021	0		603	
MN	II	2676.313	2675.517	80		328		O	III	2677.878	2677.084	4		1032	
CO	I	2676.340	2675.546	1		603		V	I	2677.911	2677.117	4	10.	1000	
NE	II	2676.397	2675.602	40		563		CR	II	2677.92	2677.13	100	8.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
P	I	2677.922	2677.126	80	7.	496		AS	II	2679.854	2679.058	2		425	
HE	I	2677.930	2677.135	5		497		FE	I	2679.8582	2679.0622	240	47.	896	
CR	II	2677.98	2677.19	125	8.	340		NI	II	2679.905	2679.109	140	63.	835	
CU	III	2678.026	2677.231	2		724		MN	II	2679.962	2679.166	140	52.	328	
MN	II	2678.044	2677.249	100		328		CU	I	2679.99	2679.19	0		672	
NE	I	2678.185	2677.389	1		896		NE	I	2680.004	2679.208	3		896	M
B	II	2678.20	2677.40			211	H	CR	I	2680.07	2679.28	4		341	
FE	III	2678.211	2677.417	25	91.	188		V	II	2680.122	2679.327	200	3.	478	
F	III	2678.213	2677.417	110		537		CL	II	2680.151	2679.355	18		613	
CR	I	2678.22	2677.43	3		341		SC	III	2680.288	2679.493	2		855	
V	I	2678.266	2677.472	1		1000		FE	I	2680.309	2679.513	0		378	
MN	II	2678.31	2677.51	5		328		MN	II	2680.313	2679.517	30		328	
SI	IV	2678.37	2677.57	10	30.	767		NI	II	2680.317	2679.521	30		835	
CU	I	2678.488	2677.794	2		672		N	II	2680.40	2679.60	5	52.	200	
O	III	2678.595	2677.800	25		1032		NI	II	2680.455	2679.659	5		835	
V	II	2678.599	2677.804	150	3.	478		V	I	2680.502	2679.707	5	79.	1000	
MN	II	2678.647	2677.851	140	52.	328		FE	I	2680.510	2679.714	2		896	M
NE	III	2678.69	2677.90	150	12.	488		CO	I	2680.546	2679.751	75	110.	603	
NE	I	2678.701	2677.905	15		896		FE	V	2680.56	2679.77			229	F
SI	II	2678.702	2677.906	3	20.	678		CU	III	2680.569	2679.773	50		724	
FE	I	2678.766	2677.971	8		896	M	FE	II	2680.571	2679.775	5	429.	896	
SC	IV	2678.807	2678.013	285		720		CR	I	2680.62	2679.82	4		341	
NI	I	2678.820	2678.026	15	69.	486		CR	II	2680.68	2679.89	15	267.	340	
FE	I	2678.826	2678.030	6		896	M	MN	II	2680.743	2679.947	100		328	
CO	II	2678.85	2678.05	5		825		TI	I	2680.744	2679.949	200	2.	488	
NA	II	2678.881	2678.087	60		693		CU	III	2680.759	2679.963	3		724	
FE	I	2678.938	2678.142	1		896	M	CO	I	2680.899	2680.104	25		603	
CR	I	2678.94	2678.15	12	18.	341		FE	I	2680.914	2680.117	10		896	M
FE	II	2679.066	2678.270	1		896		P	III	2680.929	2680.133	200		936	
AR	III	2679.17	2678.38	90	9.	488		NI	II	2680.949	2680.153	75		835	
MN	II	2679.349	2678.553	50		328		FE	II	2680.957	2680.160	8		896	
V	II	2679.367	2678.572	100	3.	478		CR	II	2680.96	2680.16	8	142.	340	
NE	III	2679.43	2678.64	125	12.	488		AL	VI	2681.	2680.			108	F
V	I	2679.469	2678.674	5	12.	1000		FE	II	2681.029	2680.233	3	408.	896	
FE	I	2679.487	2678.691	12		896	M	FE	I	2681.069	2680.273	2		896	M
SE	III	2679.49	2678.70	30		587		CA	I	2681.087	2680.291	2		1018	
SC	III	2679.521	2678.725	16		855		NI	II	2681.106	2680.310	2		835	
CR	II	2679.58	2678.79	100	7.	340		P	III	2681.107	2680.311	1		936	
FE	III	2679.604	2678.810	90	149.	188		CR	II	2681.12	2680.32	15	292.	340	
V	I	2679.673	2678.878	10	79.	1000		CR	I	2681.12	2680.33	3	18.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2681.134	2680.338	220	63.	328		F	III	2682.493	2681.696	80		537	
NA	I	2681.137	2680.340	F	2.	1019		MN	II	2682.509	2681.712	30	63.	328	
MN	II	2681.17	2680.38	40		328		MN	I	2682.518	2681.723	20		488	N
NA	I	2681.230	2680.433	F	2.	1019		FE	I	2682.681	2681.885	1		896	M
CO	II	2681.24	2680.44	7		825		CO	II	2682.70	2681.90	2		825	
FE	I	2681.2489	2680.4526	25	50.	896		SI	V	2682.72	2681.92	30		941	
V	II	2681.265	2680.470	8	111.	478		CR	I	2682.81	2682.01	10	18.	341	
S	III	2681.27	2680.47	200	19.	323		CO	II	2682.96	2682.16	3		825	
CO	II	2681.32	2680.52	3		825		NI	II	2682.991	2682.194	100		835	
ZN	III	2681.39	2680.59	10		162		SI	II	2683.007	2682.210	10	20.	678	
CR	I	2681.44	2680.64	2		341		FE	I	2683.008	2682.211	20		896	M
MN	II	2681.477	2680.681	170		328		MN	I	2683.040	2682.244	2	15.	148	
NE	II	2681.480	2680.685	1		723		CR	II	2683.05	2682.25	2		340	
FE	II	2681.499	2680.702	15	429.	896		MN	II	2683.166	2682.368	80	63.	328	
MN	II	2681.565	2680.769	40	52.	328		FE	III	2683.165	2682.388	70		288	
FE	II	2681.615	2680.818	15	202.	896		CL	III	2683.20	2682.40	300		43	
V	II	2681.617	2680.822	1		478		MN	II	2683.296	2682.499	30	63.	328	
CR	II	2681.65	2680.85	5	86.	340		CR	II	2683.30	2682.50	2		340	
CL	III	2681.68	2680.88	200		43		FE	II	2683.308	2682.511	6	425.	896	
FE	I	2681.7091	2680.9127	4	100.	896		V	II	2683.331	2682.535	6	14.	478	
V	I	2681.734	2680.939	2		1000		FE	I	2683.373	2682.576	5		896	M
FE	I	2681.788	2680.991	3		896	M	F	IV	2683.40	2682.60	4		173	
CU	I	2681.81	2681.02	2		672		V	I	2683.477	2682.682	1		1000	
FE	I	2681.820	2681.023	2		896	M	CU	II	2683.5455	2682.7487	1		612	
FE	II	2681.839	2681.042	2	429.	896		NI	II	2683.579	2682.782	5		835	
FE	II	2681.839	2681.042	2	416.	896		V	II	2683.670	2682.875	100	3.	478	
CR	II	2681.87	2681.07	3	86.	340		CR	II	2683.75	2682.95	1	186.	340	
V	I	2681.97	2681.17	2		1000		FE	II	2683.795	2682.998	6	416.	896	
CU	II	2681.97	2681.18	1		670		MN	I	2683.810	2683.014	15		488	N
FE	I	2681.999	2681.203	12		896	M	FE	I	2683.830	2683.033	2		896	M
ZN	III	2682.0	2681.2	15		162		FE	I	2683.879	2683.082	8		896	M
MN	II	2682.049	2681.252	70		328		V	I	2683.888	2683.092	80	72.	1000	
V	II	2682.09	2681.29	1		478		V	II	2683.89	2683.09	100	3.	478	
NI	II	2682.172	2681.376	3		835		AR	II	2683.891	2683.094	30		506	
O	III	2682.181	2681.386	10		1032		CR	I	2683.96	2683.16	4		341	
FE	I	2682.257	2681.461	10		896	M	ZN	III	2684.13	2683.33	50		162	
CR	I	2682.26	2681.46	18	8.	341		NI	II	2684.182	2683.385	30		835	
CU	II	2682.2934	2681.4968	2		612		NE	II	2684.188	2683.391	50		563	
MN	III	2682.30	2681.50	2		301		CR	II	2684.25	2683.45	20	268.	340	
FE	I	2682.383	2681.586	20	145.	896		MN	II	2684.28	2683.48	1		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
O	III	2684.45	2683.65	40	23.	168		NE	I	2686.050	2685.253	3		896	
FE	I	2684.507	2683.710	4		896	M	CO	I	2686.132	2685.336	75	53.	603	
CR	II	2684.53	2683.73	4	304.	340		CL	III	2686.20	2685.40	400	25.	43	
FE	II	2684.573	2683.776	4		896		CR	I	2686.20	2685.40	4	65.	341	
FE	I	2684.627	2683.830	6		896	M	V	II	2686.21	2685.41	1	14.	478	
MN	II	2684.630	2683.833	100	62.	328		FE	II	2686.233	2685.436	6	381.	896	
FE	I	2684.733	2683.936	15		896	M	ZN	III	2686.3	2685.5	2		162	
FE	I	2684.865	2684.068	20		896	M	V	I	2686.311	2685.515	4	79.	1000	
CR	II	2684.89	2684.09	8	277.	340		CR	II	2686.46	2685.66	2		340	
NE	II	2684.955	2684.158	50		563		MN	II	2686.48	2685.68	2		328	
ZN	I	2684.958	2684.162	12	6.	830		V	II	2686.485	2685.689	30	3.	478	
SC	II	2685.03	2684.23	2		1028		SE	III	2686.58	2685.78	150		587	
NI	II	2685.074	2684.277	180	63.	835		V	I	2686.640	2685.843	4	72.	1000	
FE	II	2685.150	2684.354	0	429.	488		FE	I	2686.661	2685.863	2		896	M
CO	II	2685.237	2684.440	20	28.	825		MN	II	2686.662	2685.883	100	44.	328	
FE	I	2685.314	2684.517	1		896	M	MN	I	2686.738	2685.941	8	23.	148	
MN	II	2685.337	2684.539	170	63.	328		MN	II	2686.780	2685.983	40	62.	328	
FE	I	2685.381	2684.584	3		896	M	CR	II	2686.80	2686.00	8	68.	340	
NI	II	2685.477	2684.680	10		835		FE	II	2686.905	2686.107	1	202.	896	
CR	II	2685.52	2684.72	7	85.	340		P	I	2686.964	2686.165	30	7.	496	
FE	II	2685.551	2684.754	220	283.	896	H	O	III	2687.00	2686.20	250	22.	488	P
CL	III	2685.56	2684.76	500	25.	43		FE	II	2687.015	2686.218	15		896	
V	II	2685.58	2684.78	15		478		MN	II	2687.10	2686.30	3		328	
TI	I	2685.608	2684.812	50		488	N	AR	II	2687.1207	2686.3230	30		867	
FE	I	2685.653	2684.857	2	50.	605		NE	II	2687.148	2686.350	10		563	
FE	I	2685.698	2684.900	1		896	M	V	I	2687.153	2686.356	9	79.	1000	
O	III	2685.713	2684.917	4		1032		FE	II	2687.185	2686.388	5	262.	488	
P	III	2685.741	2684.944	40		936		CR	II	2687.20	2686.40	6	241.	340	
MN	II	2685.75	2684.95	10		328		FE	II	2687.234	2686.436	1		896	
FE	II	2685.760	2684.963	1	201.	896		FE	II	2687.278	2686.482	0		645	
NE	II	2685.777	2684.979	50		563		V	I	2687.308	2686.512	10	12.	1000	
V	I	2685.814	2685.018	5	12.	1000		CR	I	2687.32	2686.52	2		341	
CR	II	2685.84	2685.04	18	122.	340		P	III	2687.382	2686.585	10		936	
FE	I	2685.897	2685.099	5		896	M	FE	I	2687.402	2686.604	1		896	M
MN	II	2685.91	2685.13	50	44.	328		CR	I	2687.405	2686.608	2		341	
V	II	2685.934	2685.138	20	110.	478		MN	II	2687.42	2686.62	20		328	
TI	I	2685.94	2685.14	30	2.	488		CR	II	2687.46	2686.66	4	68.	340	
V	I	2685.94	2685.14	15	79.	1000		CA	III	2687.520	2686.722	230		64	
FE	I	2685.940	2685.140	4		896	M	CU	I	2687.54	2686.74	1		672	
CR	II	2685.99	2685.19	18	85.	340		NE	I	2687.540	2686.742	12		896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	I	2687.574	2686.777	6		148		ZN	III	2689.11	2688.31	10		162	
N	III	2687.71	2686.91	60	25.0	521		TI	IV	2689.12	2688.32	1		721	
AR	II	2687.73	2686.94	10		506		MN	II	2689.14	2688.34	5		328	
FE	II	2687.750	2686.952	1		896		CR	II	2689.21	2688.41	45	186.	340	
V	I	2687.798	2687.001	1		1000		V	I	2689.35	2688.55	1		1000	
FE	I	2687.852	2687.054	20		896	M	NI	III	2689.473	2688.676	5		661	
CR	II	2687.89	2687.09	65	7.	340		V	II	2689.514	2688.717	100	3.	478	
MN	II	2688.166	2687.368	30		328		V	I	2689.516	2688.719	60	70.	1000	
AR	II	2688.193	2687.395	10		506		AS	II	2689.601	2688.803	50		425	
MN	I	2688.197	2687.400	8	23.	148		TI	I	2689.617	2688.820	100		488	N
V	I	2688.205	2687.408	5		1000		NI	II	2689.680	2688.881	5		835	
FE	I	2688.213	2687.415	10		896	M	V	I	2689.739	2688.942	4	71.	1000	
MN	II	2688.255	2687.457	20		328		CR	II	2689.83	2689.03	20	84.	340	
O	III	2688.33	2687.53	60	23.	168		AR	II	2689.891	2689.093	20		506	
FE	I	2688.332	2687.534	1		896	M	V	I	2689.911	2689.114	3	70.	1000	
CR	I	2688.37	2687.57	2		341		SE	III	2689.92	2689.12	30		587	
MN	III	2688.379	2687.581	5		301		CR	II	2690.00	2689.20	35	85.	340	
CR	II	2688.40	2687.60	3	84.	340		N	III	2690.00	2689.20	90	25.0	521	
CU	I	2688.47	2687.68	1		672		FE	I	2690.0109	2689.2125	200	48.	896	
CA	III	2688.562	2687.764	410	8.	64		CU	II	2690.0980	2689.2996	750	130.	612	
FE	I	2688.599	2687.801	15		896	M	V	I	2690.147	2689.350	2		1000	
CR	I	2688.65	2687.85	2		341		CL	II	2690.174	2689.375	14		613	
MN	II	2688.68	2687.88	5		328		TI	IV	2690.19	2689.39	4		721	
ZN	II	2688.680	2687.883	10		154		NE	II	2690.216	2689.418	5		563	
V	II	2688.757	2687.960	260	3.	478		MG	I	2690.34	2689.50	1		1017	
MN	II	2688.79	2687.99	2		328		NI	I	2690.478	2689.680	20	71.	488	
P	I	2688.799	2688.000	50	7.	496		NI	II	2690.528	2689.730	50		835	
CR	I	2688.832	2688.035	22	18.	341		MN	II	2690.584	2689.787	100	44.	328	
CL	II	2688.838	2688.040	340	6.	613		CR	II	2690.59	2689.79	10	188.	340	
NE	II	2688.846	2688.048	5		563		CO	II	2690.606	2689.808	8		825	
NE	II	2688.867	2688.069	5		563		CR	I	2690.62	2689.82	2	57.	341	
MN	I	2688.875	2688.078	2		148		FE	I	2690.6278	2689.8292	25	99.	896	
O	III	2688.889	2688.092	0		1032		FE	I	2690.660	2689.881	12		896	M
CU	III	2688.898	2688.100	2		724		V	II	2690.680	2689.883	100	3.	478	
F	IV	2688.91	2688.11	10		173		K	III	2690.70	2689.90	60	8.	488	
NE	II	2688.929	2688.131	10		563		AS	II	2690.820	2690.022	10		425	
CR	II	2688.94	2688.14	5	304.	340		AR	II	2690.8240	2690.0254	20		867	
FE	II	2688.990	2688.191	3		896		V	I	2690.863	2690.065	2		489	
MN	II	2689.045	2688.247	140		328		FE	I	2690.8672	2690.0686	12	4.	896	
CR	II	2689.08	2688.28	55	84.	340		BR	II	2690.948	2690.150	120	11.	488	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2690.977	2690.178	5		896	M	CR	II	2692.91	2692.11	25	84.	340	
NI	II	2690.977	2690.178	3		835		AR	II	2692.95	2692.15	5		506	
BR	II	2690.991	2690.193	500		606		TI	III	2692.957	2692.158	160		227	
MN	II	2691.04	2690.24	3		328		CO	II	2693.04	2692.24	1		825	
CR	I	2691.048	2690.251	20	18.	341		CU	III	2693.041	2692.242	15		724	
V	II	2691.050	2690.252	150	3.	478		FE	I	2693.0473	2692.2482	10	98.	896	
CR	II	2691.14	2690.34	8		340		V	III	2693.06	2692.26	30		325	
MN	II	2691.195	2690.396	30		328		CR	I	2693.239	2692.441	10	18.	341	
CR	II	2691.21	2690.41	2	186.	340		MN	II	2693.249	2692.450	100		328	
FE	I	2691.220	2690.422	2		896	M	NE	II	2693.249	2692.450	50		563	
N	II	2691.28	2690.49	5	51.	200		CO	II	2693.26	2692.46	2		825	
NI	II	2691.284	2690.485	120	65.	835		CO	I	2693.277	2692.479	1		603	
N	II	2691.526	2690.728		51.	521	P	CU	II	2693.29/3	2692.4981	8		612	
V	II	2691.589	2690.792	200	3.	478		MG	I	2693.31	2692.45			1017	
CR	I	2691.62	2690.82	2		341		FE	I	2693.320	2692.520	5		896	M
MN	II	2691.65	2690.85	20		328		SC	II	2693.39	2692.59	1		1028	
NI	II	2691.724	2690.925	1		835		ZN	II	2693.39	2692.59	20		154	
MN	I	2691.775	2690.977	2		148		AR	II	2693.3938	2692.5945	100		867	
MN	II	2691.777	2690.978	100		328		FE	II	2693.402	2692.602	60	283.	896	H
CR	II	2691.83	2691.03	90	85.	340		CR	II	2693.44	2692.64	1	322.	340	
AR	V	2691.89	2691.09			108	F	FE	I	2693.4487	2692.6495	6	50.	896	
MN	II	2691.99	2691.19	20		328		MN	I	2693.453	2692.655	20	23.	148	
MN	II	2692.05	2691.25	10		328		MN	II	2693.463	2692.665	4		328	
GA	I	2692.09	2691.29	285	3.	488		NI	II	2693.496	2692.697	3		835	
GE	I	2692.1400	2691.3411	150	1.	7		O	III	2693.530	2692.731	4		1032	
CR	I	2692.202	2691.404	12	65.	341		F	II	2693.546	2692.747	90		538	
FE	I	2692.289	2691.490	8		896	M	ZN	III	2693.55	2692.75	10		162	
CL	III	2692.32	2691.52	500	20.	43		SC	I	2693.58	2692.78	1	2.	488	
O	III	2692.367	2691.569	0		1032		FE	I	2693.605	2692.806	3		896	M
CL	II	2692.454	2691.655	20		613		FE	II	2693.633	2692.834	6	62.	896	
S	III	2692.48	2691.68	250	19.	323		N	II	2693.666	2692.867		22.0	521	P
CR	I	2692.510	2691.712	4	80.	341		CR	II	2693.80	2693.00	4	140.	340	
MN	II	2692.516	2691.717	80		328		V	I	2693.80	2693.00	2		1000	
FE	II	2692.536	2691.737	6	202.	896		V	II	2693.80	2693.00	5		478	
FE	V	2692.62	2691.82			229	F	FE	I	2693.805	2693.005	3		896	M
CU	II	2692.6243	2691.8253	1		612		CO	II	2693.81	2693.01	3		825	
MN	II	2692.780	2691.981	140		328		MN	II	2693.84	2693.04	20		328	
MN	III	2692.780	2691.984	10		301		CO	II	2693.890	2693.091	6		825	
CR	II	2692.79	2691.99	3	277.	340		MN	II	2693.91	2693.11	60		328	
ZN	III	2692.9	2692.1	5		162		MN	II	2693.991	2693.192	220	34.	328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
SE	III	2694.02	2693.22	1		14		NE	II	2695.618	2694.819	50		563	
CR	I	2694.113	2693.315	8	57.	341		CR	I	2695.686	2694.887	10	80.	341	
NE	II	2694.155	2693.356	70		563		SI	V	2695.79	2694.99	200		941	
MN	II	2694.185	2693.387	5		328		CL	II	2695.82	2695.02	6		345	
FE	I	2694.202	2693.402	3		896	M	CO	II	2695.82	2695.02	4		825	
CL	II	2694.21	2693.41	2		345		F	IV	2695.83	2695.03	4		173	
FE	I	2694.279	2693.479	2		896	M	FE	I	2695.8342	2695.0344	30	47.	896	
CR	II	2694.33	2693.53	45	84.	340		MN	II	2695.847	2695.046	60		328	
NE	II	2694.339	2693.539	50		563		CO	II	2695.93	2695.13	0		825	
MN	II	2694.369	2693.570	100	44.	328		FE	I	2695.949	2695.149	2		896	M
CR	I	2694.42	2693.62	4		341		FE	III	2695.950	2695.150	450	159.	288	
MG	I	2694.522	2693.723	5	10.	1017		FE	I	2695.980	2695.180	1		896	M
MN	N	2694.63	2693.83	15		328		MG	I	2695.981	2695.181	10	10.	1017	
FE	II	2694.656	2693.857	2	261.	896		FE	I	2696.009	2695.209	4		896	M
CR	II	2694.67	2693.87	7	277.	340		V	I	2696.033	2695.235	4	12.	1000	
CR	I	2694.70	2693.90	5		341		CO	II	2696.060	2695.260	0		825	
V	I	2694.716	2693.918	6	70.	1000		FE	I	2696.108	2695.308	1		896	M
MN	I	2694.755	2693.957	2	23.	148		FE	III	2696.114	2695.314	360	159.	288	
P	III	2694.762	2693.959	1		936		FE	I	2696.161	2695.362	3		896	M
F	V	2694.78	2693.98	4		172		MN	II	2696.166	2695.365	220	34.	328	
FE	I	2694.847	2694.047	3		896	M	CO	II	2696.17	2695.37	0		825	
CU	I	2694.878	2694.080	5		672		O	V	2696.24	2695.44	60		83	
MN	II	2694.901	2694.102	100		328		F	IV	2696.25	2695.45	25		173	
V	I	2694.901	2694.102	3		1000		O	III	2696.29	2695.49	90	23.	168	
FE	I	2694.983	2694.184	5		896	M	FE	I	2696.303	2695.530	20		896	M
CR	X	2695.0	2694.2			726	F	CL	III	2696.32	2695.52	500	16.	38	
FE	I	2695.0382	2694.2386	5	4.	896		MN	II	2696.39	2695.59	5		328	
CR	I	2695.04	2694.24	2	65.	341		FE	I	2696.390	2695.590	3		896	M
FE	II	2695.068	2694.269	20	374.	488		FE	I	2696.451	2695.651	12	145.	896	
CO	I	2695.190	2694.392	25		603		FE	I	2696.481	2695.681	5		896	M
CR	II	2695.23	2694.43	4	322.	340		NE	II	2696.520	2695.720	40		563	
V	II	2695.27	2694.47	5	49.	478		CO	I	2696.645	2695.846	50	53.	603	
ZN	II	2695.33	2694.53	20		154		CO	II	2696.68	2695.98	1		825	
FE	I	2695.336	2694.536	15	144.	896		FE	III	2696.727	2695.929	25		168	
MN	I	2695.358	2694.560	8	15.	148		MN	II	2696.752	2695.951	50		328	
CL	II	2695.414	2694.615	8		613		ZN	II	2696.76	2695.96	20		154	
V	II	2695.45	2694.65	10		478		TI	II	2696.77	2695.97	0		601	
CO	II	2695.479	2694.679	200	13.	825		FE	I	2696.789	2695.989	25		896	M
CR	II	2695.50	2694.70	7	163.	340		R	III	2696.835	2696.035	4		936	
V	II	2695.54	2694.74	20	2.	478		O	III	2696.872	2696.072	25		032	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2696.90	2696.10	4	61.	340		BE	II	2698.385	2697.585	15		332	
N	III	2696.91	2696.11	25	24.0	521		FE	II	2698.521	2697.721	6	325.	896	
HE	I	2696.919	2696.119	7		497		C	III	2698.54	2697.75	220	28.	34	
FE	I	2696.923	2696.123	6		896	M	C	IV	2698.54	2697.75	100	12.	35	
CR	I	2696.933	2696.135	10	80.	341		V	I	2698.543	2697.744	50	86.	1000	
V	I	2697.021	2696.222	5		1000		FE	II	2698.598	2697.797	10	431.	896	
FE	I	2697.083	2696.283	50	143.	896		CO	II	2698.70	2697.90	4		825	
SE	III	2697.15	2696.35	50		587		CR	II	2698.70	2697.90	30	84.	340	
V	I	2697.175	2696.376	1		1000		FE	I	2698.782	2697.982	5		896	M
CU	III	2697.178	2696.378	170		724		GE	IV	2698.88	2698.08	3		406	
P	IV	2697.249	2696.449	25		937		CR	I	2698.893	2698.094	4		341	
BR	III	2697.25	2696.45	1		586		CR	II	2698.91	2698.11	8	122.	340	
NI	I	2697.264	2696.484	10	49.	488		P	IV	2698.945	2698.144	60		937	
V	II	2697.31	2696.51	20		478		MG	I	2698.945	2698.145	15	10.	1017	
CR	I	2697.333	2696.534	20	8.	341		FE	I	2698.965	2698.165	20		896	
FE	II	2697.392	2696.592	8		896		CR	I	2698.99	2698.19	2		341	
N	III	2697.51	2696.71	10	24.0	521		FE	III	2699.062	2698.261	20		288	
V	I	2697.559	2696.760	6	70.	1000		CO	II	2699.08	2698.28	1		825	
CR	II	2697.56	2696.76	20	84.	340		FE	I	2699.085	2698.285	5		896	M
FE	I	2697.586	2696.786	2		896	M	AS	II	2699.173	2698.372	1		425	
FE	I	2697.695	2696.895	2		896	M	FE	I	2699.178	2698.377	1		896	M
FE	III	2697.705	2696.905	220	159.	288		CR	II	2699.20	2698.40	100	7.	340	
FE	I	2697.753	2696.953	1		896	M	FE	III	2699.215	2698.414	220	159.	288	
MN	II	2697.780	2696.979	30		328		CO	II	2699.216	2698.415	0		825	
V	I	2697.795	2696.996	40	86.	1000		CU	III	2699.242	2698.441	50		724	
CR	I	2697.81	2697.01	15	65.	341		MN	II	2699.32	2698.52	10		328	
FE	I	2697.8213	2697.0210	20	100.	896		TI	II	2699.32	2698.52	30		488	N
CO	II	2697.850	2697.050	15	13.	825		CL	II	2699.36	2698.56	4		345	
MN	II	2697.995	2697.195	20		328		MN	II	2699.426	2698.626	5	103.	328	
CR	I	2697.999	2697.200	8	17.	341		CO	II	2699.46	2698.66	1		825	
V	II	2698.000	2697.201	10	207.	478		C	IV	2699.47	2698.67	100	12.	35	
FE	II	2698.132	2697.331	6	341.	896	H	CR	II	2699.48	2698.68	35	7.	340	
FE	III	2698.14	2697.34	70	159.	288		V	I	2699.523	2698.724	40	79.	1000	
AR	II	2698.174	2697.374	10		506		MN	II	2699.531	2698.730	10	103.	328	
CO	II	2698.21	2697.41	1		825		NI	II	2699.624	2698.823	50		835	
C	III	2698.220	2697.420	40	28.	34		CR	II	2699.65	2698.85	30	289.	340	
BE	II	2698.255	2697.455	3		332		MN	I	2699.689	2698.890	2	15.	148	
FE	II	2698.261	2697.461	12	341.	896	H	CL	II	2699.74	2698.94	2		345	
CR	II	2698.31	2697.51	25	186.	340		MN	II	2699.788	2698.989	170	35.	328	
MN	II	2698.31	2697.51	10		328		SC	III	2699.868	2699.067	700	3.	855	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	I	2699.9072	2699.1064	140	48.	896		CU	II	2701.7628	2700.9616	700	165.	612	
SC	I	2699.92	2699.12	6		1030	M	FE	V	2701.81	2701.01			229	F
V	I	2699.92	2699.12	20	79.	1000		MN	II	2701.826	2701.024	170	34.	328	
FE	II	2700.000	2699.199	3	416.	896		O	III	2701.826	2701.025	25		1032	
CR	II	2700.14	2699.34	20	141.	340		CR	II	2701.90	2701.10	30	62.	340	
ZN	III	2700.22	2699.42	10		162		FE	I	2701.905	2701.104	3		896	M
FE	I	2700.253	2699.452	6		896	M	FE	III	2701.93	2701.13	220	159.	288	
FE	I	2700.342	2699.542	1		896	M	FE	I	2701.946	2701.145	8		896	M
MN	II	2700.37	2699.57	40	34.	328		ZN	III	2701.96	2701.16	10		162	
FE	II	2700.423	2699.622	6		896		MN	II	2701.972	2701.170	220	35.	328	
V	II	2700.43	2699.63	4		478		FE	II	2701.974	2701.174	1		645	
FE	I	2700.576	2699.775	4		896	M	FE	I	2701.999	2701.198	4		896	M
CL	III	2700.59	2699.79	100	16.	38		CR	II	2702.04	2701.24	20	230.	340	
CR	II	2700.64	2699.84	2		340		NE	II	2702.049	2701.248	10		563	
MN	II	2700.652	2699.853	30	103.	328		V	I	2702.066	2701.266	7		1000	
S	II	2700.67	2699.87	300		285		AS	II	2702.158	2701.357	30		425	
MN	II	2700.75	2699.95	4	103.	328		CL	IV	2702.16	2701.36	400		43	
NI	II	2700.795	2699.994	20		835		MN	II	2702.329	2701.530	20	103.	328	
MN	II	2700.811	2700.011	10	103.	328		V	II	2702.336	2701.535	10	2.	478	
O	V	2700.84	2700.04	25		83		FE	II	2702.343	2701.541	8		896	
FE	III	2700.846	2700.045	285	159.	288		CO	II	2702.44	2701.64	1		825	
V	I	2700.846	2700.046	4		1000		NE	I	2702.440	2701.639	6		896	
ZN	III	2700.99	2700.19	0		162		CR	II	2702.45	2701.65	15	62.	340	
V	II	2701.00	2700.20	1		478		MN	II	2702.500	2701.698	450	18.	328	H
MN	II	2701.089	2700.296	10		328		AR	II	2702.520	2701.719	20		506	
CR	I	2701.09	2700.29	3		341		CR	II	2702.55	2701.75	12	277.	340	
CO	I	2701.098	2700.298	1		603		FE	I	2702.7106	2701.9092	8	161.	896	
FE	II	2701.157	2700.356	10		896		TI	III	2702.757	2701.956	230		227	
CO	II	2701.18	2700.38	8		825		CR	I	2702.790	2701.990	30	18.	341	
MN	II	2701.18	2700.38	30		328		CO	II	2702.806	2702.004	5	29.	825	
GA	II	2701.27	2700.47	1000	9.	652		V	II	2702.985	2702.185	200	2.	478	
V	I	2701.306	2700.506	1		1000		MN	II	2703.03	2702.23	5	103.	328	
NE	I	2701.356	2700.555	8		723		FE	I	2703.099	2702.297	2		896	M
CR	I	2701.390	2700.590	20	17.	341		F	V	2703.10	2702.30	4		176	
MN	II	2701.527	2700.673	30		328		FE	I	2703.208	2702.407	2		896	M
CO	II	2701.53	2700.73	1		825		CO	II	2703.235	2702.433	10	29.	825	
NE	I	2701.53	2700.73	2		723		FE	I	2703.2508	2702.4492	8	154.	896	
SC	II	2701.61	2700.81	1		1028		CR	I	2703.319	2702.519	15	64.	341	
NE	II	2701.74	2700.94	1		1029		NE	I	2703.362	2702.560	6		896	
V	II	2701.744	2700.944	260	1.	478		ZN	II	2703.4	2702.6	10		154	

SPECTRUM		VACUUM WAVELENGT	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	I	2703.45	2702.65	1	47.	672		NE	I	2705.08	2704.28	2		723	
NE	II	2703.457	2702.656	30		563		MN	II	2705.123	2704.321	5		328	
FE	III	2703.459	2702.657	40		288		NI	II	2705.217	2704.415	20		835	
CR	I	2703.48	2702.68	2	94.	341		FE	III	2705.226	2704.424	20		288	
AS	II	2703.512	2702.71	100		425		FE	III	2705.23	2704.43	25	159.	188	
S	III	2703.56	2702.76	250	19.	323		CU	II	2705.322	2704.520	3		612	
FE	I	2703.564	2702.762	1		896	M	FE	II	2705.369	2704.569	5	202.	488	
CO	II	2703.588	2702.786	0		825		MN	II	2705.39	2704.59	8		328	
NI	II	2703.598	2702.796	3		835		CR	II	2705.53	2704.73	4		340	
GE	II	2703.63	2702.83	2		676		CR	I	2705.545	2704.744	12	65.	341	
CR	II	2703.69	2702.89	5		340		FE	I	2705.551	2704.748	8		896	M
NI	II	2703.707	2702.905	4		835		CA	III	2705.661	2704.859	360	9.	64	
NE	II	2703.743	2702.942	5		563		FE	I	2705.668	2704.866	2		896	M
CR	II	2703.76	2702.96	4	186.	340		CR	I	2705.69	2704.89	15		341	
MN	II	2703.79	2702.94	30		328		MN	II	2705.83	2705.03	30		328	
MN	II	2703.85	2703.04	5		328		FE	I	2705.883	2705.081	1		896	M
CR	I	2703.91	2703.11	2		341		FE	III	2705.91	2705.10	120	159.	188	
MN	I	2703.930	2703.129	20		148		FE	III	2705.919	2705.117	220		288	
V	II	2703.95	2703.15	3	67.	478		NI	II	2705.956	2705.154	3		835	
CU	II	2703.9859	2703.1841	650	130.	612		CU	I	2705.98	2705.18	2		672	
MN	II	2704.02	2703.22	30	34.	328		V	II	2706.021	2705.220	40	2.	478	
MN	II	2704.15	2703.34	2	103.	328		CO	I	2706.213	2705.412	3		603	
MN	II	2704.255	2703.453	40	18.	328		CR	I	2706.215	2705.414	12	64.	341	
CR	I	2704.28	2703.48	12	18.	341		FE	V	2706.23	2705.43			229	F
MN	II	2704.30	2703.50	20	35.	328		NI	I	2706.263	2705.463	5	48.	488	
CR	II	2704.36	2703.56	75	84.	340		MN	II	2706.364	2705.561	140	34.	328	
MN	I	2704.460	2703.658	50		148		CO	II	2706.493	2705.691	M		825	
MN	II	2704.562	2703.760	50	34.	328		CR	I	2706.525	2705.724	10	18.	341	
CR	II	2704.65	2703.85	30	7.	340		MN	II	2706.534	2705.732	320	18.	328	H
V	I	2704.705	2703.904	1		1000		CO	I	2706.644	2705.843	15		603	
MN	I	2704.72	2703.92	40	11.	148		CO	II	2706.65	2705.85	100		825	
V	IV	2704.735	2703.933	20		829		CR	I	2706.72	2705.92	2		341	
F	V	2704.76	2703.96	4		172		SE	III	2706.76	2705.96	85		587	
MN	II	2704.78	2703.98	320	18.	328	H	FE	I	2706.8146	2706.0121	80	154.	896	
FE	II	2704.790	2703.988	60	261.	896	H	P	III	2706.844	2706.042	25		936	
GE	II	2704.829	2704.027	200	16.	676		CR	II	2706.86	2706.06	8	322.	340	
MN	II	2704.847	2704.045	20	103.	328		FE	I	2706.870	2706.067	20		896	M
CU	I	2704.89	2704.09	1		672		MN	II	2706.895	2706.094	20	34.	328	
MN	II	2705.00	2704.20	20		328		MN	I	2706.943	2706.142	5	15.	148	
NI	II	2705.050	2704.248	3		835		V	II	2706.97	2706.17	200	1.	478	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	III	2706.98	2706.17	10	159.	188	CU	III	2708.707	2707.904	1		724
FE	III	2707.013	2706.210	20		288	MN	II	2708.717	2707.915	20	103.	328
CO	II	2707.197	2706.396	4		825	CO	II	2708.747	2707.944	1		825
NI	I	2707.321	2706.521	15	70.	488	SC	I	2708.75	2707.95	1	2.	488
CR	I	2707.332	2706.531	20	64.	341	CO	I	2708.79	2707.99	1		603
B	V	2707.34	2706.54			309	P	II	2708.80	2708.00	0		431
CO	II	2707.362	2706.560	100	28.	825	FE	I	2708.806	2708.003	3		896
FE	II	2707.366	2706.566	220	341.	488	FE	I	2708.843	2708.040	2		896
FE	I	2707.3848	2706.5822	200	48.	896	CO	II	2708.85	2708.04	15		825
MN	II	2707.435	2706.631	140	18.	328	AR	II	2708.855	2708.052	20		506
F	IV	2707.46	2706.66	4		173	CR	I	2708.94	2708.14	2		341
V	II	2707.50	2706.70	150	2.	478	V	I	2709.026	2708.224	2		489
ZN	III	2707.52	2706.72	10		162	CR	I	2709.04	2708.24	3		341
NE	I	2707.54	2706.74	2		1029	CU	II	2709.0727	2708.2697	30		612
CL	II	2707.540	2706.738	9		613	AR	II	2709.075	2708.272	60		506
SC	I	2707.58	2706.78	2	1.	488	CU	III	2709.120	2708.317	8		724
FE	I	2707.623	2706.821	3		896	F	III	2709.158	2708.355	50		537
O	V	2707.63	2706.83	25		83	C	II	2709.2	2708.4	4	61.	287
FE	I	2707.682	2706.879	2		896	FE	II	2709.220	2708.417	5		896
MN	II	2707.70	2706.90	15		328	MN	II	2709.255	2708.452	320	18.	328
FE	II	2707.716	2706.913	6		896	FE	I	2709.3742	2708.5712	60	161.	896
ZN	III	2707.72	2706.92	10		162	CL	II	2709.40	2708.60	2		345
FE	I	2707.803	2707.000	2		896	N	II	2709.438	2708.635	140	63.	835
FE	I	2707.837	2707.034	5		896	FE	I	2709.456	2708.653	5		896
TI	II	2707.85	2707.05	0		601	MN	II	2709.520	2708.719	8		328
FE	II	2707.928	2707.128	160	339.	488	CR	II	2709.58	2708.78	65	186.	340
F	V	2707.97	2707.17	10		176	CO	I	2709.611	2708.810	30		603
CL	II	2708.079	2707.277	4		613	MN	II	2709.617	2708.814	140	18.	328
CO	II	2708.085	2707.282	10	29.	825	FE	I	2709.693	2708.890	3		896
FE	V	2708.16	2707.36			229	V	II	2709.71	2708.91	1		478
NI	II	2708.193	2707.390	3		835	CO	II	2709.722	2708.920	30	29.	825
FE	I	2708.251	2707.448	10		896	O	III	2709.727	2708.926	4		1032
CR	I	2708.26	2707.46	2		341	B	II	2709.796	2708.993	50		532
CU	I	2708.30	2707.50	0		672	CL	II	2709.814	2709.011	46		613
MN	II	2708.346	2707.544	220	18.	328	S	III	2709.84	2709.03	100	16.	323
V	I	2708.390	2707.589	3	10.	1000	FE	II	2709.858	2709.054	20	218.	896
CR	I	2708.49	2707.69	7	56.	341	MN	II	2709.87	2709.06	5		328
FE	I	2708.512	2707.709	1		896	V	II	2709.90	2709.10	6		478
CU	III	2708.647	2707.844	5		724	FE	III	2710.046	2709.243	70		288
V	II	2708.66	2707.86	100	2.	478	CO	I	2710.09	2709.29	0		603

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	2710.11	2709.31	60	186.	340		CU	II	2711.4107	2710.6072	2		612	
FE	II	2710.174	2709.373	5	62.	488		MN	II	2711.433	2710.629	140		328	
F	III	2710.211	2709.408	250		537		BR	III	2711.59	2710.79	1		586	
CL	II	2710.284	2709.481	4		613		CO	II	2711.615	2710.811	1		825	
BR	II	2710.377	2709.576	120	8.	488		CR	II	2711.72	2710.92	65	289.	340	
ZN	II	2710.39	2709.59	15		154		FE	I	2711.741	2710.938	4		896	M
CL	II	2710.390	2709.587	15		613		FE	I	2711.815	2711.011	1		896	M
MN	II	2710.420	2709.617	60		328		FE	I	2711.855	2711.051	2		896	M
GE	I	2710.4270	2709.6237	150	1.	7		K	IV	2711.9	2711.1			726	F
NI	II	2710.439	2709.636	50		835		CU	III	2711.906	2711.102	8		724	
FE	I	2710.495	2709.691	4	180.	896		MN	II	2711.925	2711.123	5		328	
CU	II	2710.5627	2709.7594	3		612		CR	II	2711.99	2711.19	20	187.	340	
CL	II	2710.594	2709.791	6		613		FE	I	2711.993	2711.195	2		896	M
N	II	2710.640	2709.837	160	22.	200		P	IV	2712.049	2711.245	90		937	
P	III	2710.649	2709.846	4		936		SC	I	2712.16	2711.36	2	1.	488	
FE	II	2710.738	2709.937	1	340.	488		CR	I	2712.20	2711.40	6	94.	341	
FE	III	2710.752	2709.949	20		288		NE	II	2712.256	2711.453	50		563	
MN	II	2710.774	2709.970	170	18.	328		O	V	2712.33	2711.53	25		83	
CO	II	2710.792	2709.990	1		825		MN	II	2712.370	2711.568	100	18.	328	
FE	I	2710.793	2709.989	20	144.	896		CU	II	2712.381	2711.577	1		612	
FE	II	2710.840	2710.037	8		896		MN	II	2712.432	2711.630	320	18.	328	
V	II	2710.97	2710.17	15	48.	478		FE	I	2712.4592	2711.6554	140	47.	896	
CR	I	2710.99	2710.19	25		341		NE	II	2712.539	2711.735	30		563	
CU	II	2711.0491	2710.2456	15		612		V	II	2712.543	2711.740	100	2.	478	
P	II	2711.057	2710.254	3		496		CU	I	2712.56	2711.75	0		672	
P	III	2711.078	2710.274	60		936		FE	II	2712.646	2711.842	10	201.	896	H
CO	II	2711.137	2710.334	1		825		CU	II	2712.6690	2711.8651	40		612	
MN	II	2711.140	2710.336	320	18.	328	H	V	I	2712.677	2711.874	1		489	
CL	III	2711.17	2710.37	700	20.	43		CO	II	2712.70	2711.90	M		825	
MN	II	2711.195	2710.392	140	18.	328		AS	II	2712.705	2711.901	0		425	
O	III	2711.200	2710.398	1		1032		V	II	2713.01	2712.21	30		478	
FE	I	2711.221	2710.417	3		896	M	V	I	2713.020	2712.217	4	86.	1000	
FE	I	2711.244	2710.440	3		896	M	CR	II	2713.10	2712.30	80	7.	340	
V	I	2711.273	2710.471	2		489		FE	II	2713.100	2712.296	15	431.	896	
P	III	2711.276	2710.473	1		936		C	II	2713.12	2712.32	1	60.	287	
FE	I	2711.3473	2710.5437	20	100.	896		CO	II	2713.15	2712.35	15		825	
CO	II	2711.358	2710.555	1		825		FE	II	2713.195	2712.391	10	201.	896	
FE	V	2711.38	2710.58		*	229	F	P	IV	2713.208	2712.404	25		937	
C	II	2711.39	2710.59	4	60.	287		ZN	I	2713.292	2712.490	10	6.	830	
NE	II	2711.404	2710.601	5		563		FE	I	2713.489	2712.685	2		896	M

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SE	III	2713.53	2712.73	85		587		V	II	2715.22	2714.42	10		478	
CL	II	2713.553	2712.748	10		613		CO	II	2715.243	2714.439	200	13.	825	
V	II	2713.61	2712.81	7		478		CO	II	2715.250	2714.446	200		825	
CR	II	2713.65	2712.85	10	289.	340		CR	I	2715.28	2714.48	4		341	
F	V	2713.68	2712.88	1		176		CU	I	2715.34	2714.54	2		672	
FE	II	2713.791	2712.989	5	325.	488		MN	II	2715.387	2714.584	10		328	
V	II	2713.853	2713.050	40	2.	478		MN	II	2715.541	2714.737	30		328	
NE	II	2713.904	2713.100	50		563		CO	II	2715.61	2714.81	3		825	
CO	II	2714.01	2713.21	1		825		CR	I	2715.637	2714.834	8	94.	341	
S	III	2714.09	2713.28	100	16.	323		FE	I	2715.6737	2714.8691	40	48.	896	
MN	I	2714.123	2713.320	100	11.	148		MN	III	2715.740	2714.936	10		301	
CR	I	2714.16	2713.36	6		341		FE	I	2715.742	2714.938	8		896	M
O	III	2714.216	2713.414	10.		1032		CO	II	2715.75	2714.95	2		825	
FE	I	2714.249	2713.445	5		896	M	MN	II	2715.79	2714.98	40		328	
FE	I	2714.287	2713.483	6		896	M	V	I	2715.828	2715.025	7		1000	
CU	II	2714.3123	2713.5080	700	130.	612		CR	II	2715.83	2715.03	5		340	
F	IV	2714.34	2713.54	1		173		FE	I	2715.925	2715.120	5		896	M
SC	IV	2714.408	2713.606	1		720		BR	II	2715.96	2715.16	0		606	
FE	I	2714.444	2713.640	10		896	M	FE	I	2715.976	2715.171	3		896	M
P	III	2714.453	2713.649	1		936		FE	I	2716.1252	2715.3205	5	4.	896	
BR	II	2714.510	2713.708	500	11.	488		CU	I	2716.15	2715.35	5	52.	672	
NE	II	2714.533	2713.729	20		563		CU	II	2716.2088	2715.4041	30		612	
TI	II	2714.56	2713.76	1	13.	488		FE	I	2716.209	2715.405	6		896	M
BR	II	2714.587	2713.784	600		606		MN	II	2716.26	2715.45	1		328	
MN	II	2714.64	2713.83	30		328		P	III	2716.280	2715.476	4		936	
NE	II	2714.702	2713.898	30		563		FE	I	2716.300	2715.500	3		896	M
MN	II	2714.72	2713.91	5		328		CR	I	2716.31	2715.51	2	64.	341	
CR	I	2714.73	2713.93	3		341		CU	I	2716.346	2715.543	20	52.	672	
AS	II	2714.740	2713.936	30		425		CR	II	2716.41	2715.61	5		340	
CU	I	2714.80	2714.00	2		672		FE	II	2716.412	2715.609	1	325.	488	
N	III	2714.81	2714.01	25	21.	521		CO	II	2716.48	2715.67	5		825	
FE	I	2714.8635	2714.0591	20	161.	896		V	II	2716.480	2715.676	180	1.	478	
N	III	2714.87	2714.07	4	21.	521		FE	II	2716.490	2715.685	6		896	
CO	II	2714.94	2714.14	4		825		MN	II	2716.504	2715.699	50		328	
V	II	2715.008	2714.205	50	2.	478		SE	III	2716.74	2715.94	120		587	
N	III	2715.15	2714.35	1	21.	521		CR	II	2716.77	2715.97	3	186.	340	
CL	III	2715.17	2714.37	200		43		CR	I	2716.78	2715.98	4	51.	341	
CO	II	2715.179	2714.374	15		825		CO	I	2716.790	2715.987	75	131.	603	
CL	II	2715.19	2714.38	16		345		FE	I	2716.807	2716.002	3		896	M
FE	II	2715.218	2714.413	80	63.	896	H	AS	II	2716.838	2716.034	5		425	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CO	II	2716.84	2716.04	1		825		FE	V	2718.62	2717.82			229	F
MN	II	2716.843	2716.038	30		328		CO	II	2718.63	2717.83	1		825	
MN	II	2716.95	2716.14	1		328		FE	II	2718.679	2717.873	50	431.	896	
CR	I	2716.980	2716.177	20	17.	341		FE	I	2718.734	2717.929	12		896	M
TI	II	2717.00	2716.20	4	13.	488		CR	I	2718.87	2718.07	7	17.	341	
FE	II	2717.022	2716.217	50	261.	896	H	CR	II	2718.88	2718.08	12	187.	340	
FE	I	2717.0624	2716.2575	50	155.	896		P	III	2718.890	2718.085	4		936	
CO	II	2717.18	2716.37	10		825		CO	II	2718.94	2718.13	1		825	
FE	I	2717.2234	2716.4184	6	154.	896		F	III	2718.940	2718.135	200		537	
FE	II	2717.232	2716.429	40	339.	488		NI	II	2719.044	2718.239	5		835	
NI	II	2717.239	2716.434	5		835		CR	II	2719.12	2718.32	40	102.	340	
MN	II	2717.24	2716.43	5		328		F	IV	2719.14	2718.34	1		173	
CO	II	2717.31	2716.51	2		825		CU	II	2719.16	2718.36	1		825	
CL	II	2717.323	2716.518	4		613		MN	II	2719.18	2718.37	30		328	
FE	II	2717.369	2716.564	15	434.	896		NI	II	2719.197	2718.392	15		835	
V	IV	2717.399	2716.594	20		829		CP	II	2719.23	2718.43	5	121.	340	
CR	I	2717.447	2716.643	10	94.	341		FE	I	2719.2416	2718.4362	155	48.	896	
V	I	2717.492	2716.689	3		1000		FE	II	2719.446	2718.640	8	417.	896	
FE	II	2717.506	2716.701	3	62.	896		TI	III	2719.45	2718.64	1		227	
CO	II	2717.53	2716.73	1		825		N	II	2719.459	2718.655		17.0	521	P
MN	II	2717.602	2716.796	170	33.	328		V	IV	2719.527	2718.722	2		829	
AR	II	2717.665	2716.860	20		506		CU	II	2719.5830	2718.7775	650	174.	612	
CR	II	2717.69	2716.89	6	186.	340		MN	II	2719.585	2718.779	30		328	
MN	II	2717.797	2716.993	5		328		CU	I	2719.651	2718.847	2		672	
MN	I	2717.831	2717.028	4		148		S	III	2719.68	2718.88	350	16.	323	
CR	II	2717.85	2717.05	7	163.	340		MN	II	2719.818	2719.012	170	33.	328	
MN	III	2717.89	2717.09	1		301		FE	I	2719.8331	2719.0275	620	5.	896	
F	III	2717.900	2717.095	80		537		CU	II	2719.837	2719.031	1		612	
AS	II	2718.038	2717.232	2		425		CO	II	2719.84	2719.03	15		825	
TI	II	2718.107	2717.304	3	15.	488		FE	I	2719.8666	2719.0604	40		896	
FE	I	2718.1710	2717.3658	15	47.	896		CR	I	2719.90	2719.10	4		341	
V	I	2718.236	2717.433	3	9.	1000		CU	I	2719.901	2719.097	15	52.	672	
GE	IV	2718.24	2717.44	15		406		FE	II	2720.107	2719.301	12	339.	896	
V	II	2718.268	2717.464	5	121.	478		CR	II	2720.11	2719.31	3	60.	340	
CR	II	2718.31	2717.51	40	7.	340		MN	II	2720.113	2719.307	140		328	
MN	II	2718.332	2717.527	170	33.	328		TI	II	2720.19	2719.39	2	13.	488	
FE	II	2718.336	2717.533	5	417.	488	H	FE	I	2720.2256	2719.4199	100	154.	896	
FE	II	2718.356	2717.553	1	32.	488		CU	III	2720.346	2719.540	2		724	
CL	III	2718.42	2717.62	200		43		CO	I	2720.385	2719.581	25	108.	603	
FE	I	2718.5917	2717.7865	50	49.	896		FE	I	2720.398	2719.592	15		896	M

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CL	II	2720.407	2719.601	10	.	613		FE	II	2722.618	2721.813	70	199.	488	
GA	I	2720.468	2719.664	40	2.	488		FE	I	2722.8450	2722.0387	12	97.	896	
CR	II	2720.48	2719.68	3	102.	340		FE	II	2722.869	2722.062	10	260.	896	
MN	II	2720.548	2719.743	220	33.	328		CR	I	2722.890	2722.085	10	71.	341	
CL	II	2720.65	2719.85	2		345		V	II	2722.900	2722.095	1		478	
F	III	2720.676	2719.870	150		537		MN	II	2722.902	2722.097	170	33.	328	
MN	II	2720.701	2719.895	100		328		CO	I	2722.911	2722.106	50	140.	603	
MN	II	2720.810	2720.003	140	33.	328		NE	II	2722.965	2722.159	40		563	
CR	II	2720.86	2720.06	50	102.	340		F	III	2723.039	2722.233	12		537	
AR	II	2720.990	2720.184	20		506		SI	II	2723.056	2722.250	2	19.	678	
FE	I	2721.0026	2720.1967	50	129.	896		MN	II	2723.060	2722.254	20		328	
CU	I	2721.003	2720.199	15	49.	372		V	II	2723.063	2722.258	3	47.	478	
CR	II	2721.05	2720.25	40	102.	340		NE	II	2723.263	2722.477	5		563	
FE	III	2721.185	2720.381	60	113.	188		V	I	2723.365	2722.560	60	85.	1000	
MN	I	2721.191	2720.387	2		148		SC	IV	2723.498	2722.693	20		720	
FE	I	2721.3247	2720.5188	0	4.	896		CU	I	2723.507	2722.702	5		672	
MN	II	2721.341	2720.534	20		328		CR	II	2723.54	2722.74	70	7.	340	
MN	I	2721.354	2720.550	5		148		NI	II	2723.544	2722.738	10		835	
CU	I	2721.44	2720.62	2	47.	672		FE	II	2723.547	2722.740	5	416.	896	
CO	II	2721.49	2720.68	1		825		CR	I	2723.79	2722.98	2	51.	341	
CR	II	2721.49	2720.69	15	140.	340		FE	I	2723.838	2723.032	0	154.	378	
ZN	III	2721.56	2720.76	50		162		CO	I	2723.85	2723.05	0		603	
V	II	2721.57	2720.77	2		478		CO	II	2723.90	2723.09	6		825	
FE	I	2721.7087	2720.9026	380	5.	896		MN	III	2723.954	2723.147	7		301	
CO	II	2721.72	2720.91	15		825		HE	I	2723.998	2723.191	10		497	
CO	II	2721.83	2721.02	6		825		SI	VIII	2724.	2723.			843	H
F	V	2721.87	2721.06	1		176		F	III	2724.021	2723.214	110		537	
FE	I	2721.914	2721.108	8		896	M	V	II	2724.023	2723.218	20	1.	478	
V	I	2721.944	2721.139	20		1000		F	IV	2724.06	2723.25	1		173	
SI	V	2722.051	2721.246	600		941		FE	V	2724.09	2723.28			229	F
MN	II	2722.138	2721.333	10		328		FE	II	2724.243	2723.436	1	431.	488	
CR	I	2722.18	2721.38	2		341		V	II	2724.260	2723.455	10		478	
S	III	2722.21	2721.40	250	19.	323		P	IV	2724.262	2723.455	1		937	
CU	I	2722.24	2721.44	1		672		CR	II	2724.29	2723.48	30	102.	340	
AR	II	2722.386	2721.580	5		506		SC	IV	2724.322	2723.517	285		720	
CA	I	2722.451	2721.645	20	2.	1018		CO	II	2724.37	2723.56	4		825	
MN	II	2722.464	2721.660	10		328		FE	I	2724.3845	2723.5778	200	5.	896	
CU	II	2722.4836	2721.6774	300	164.	612		CR	II	2724.45	2723.64	60	59.	340	
CU	I	2722.56	2721.75	1		672		SI	V	2724.573	2723.768	550		941	
NI	II	2722.576	2721.770	3		835		NE	I	2724.594	2723.787	8		896	M

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SI	IV	2724.619	2723.812	90	32.	767		CO	II	2726.56	2725.76	6		825	
CR	I	2724.71	2723.90	2		341		TI	II	2726.60	2725.79	3	15.	488	
V	I	2724.730	2723.925	2		1000		FE	I	2726.611	2725.805	1	161.	605	
CU	I	2724.759	2723.953	30	49.	672		F	III	2726.629	2725.822	200		537	
F	III	2724.807	2724.000	110		537		CR	I	2726.67	2725.86	4		341	
CO	II	2724.83	2724.02	5		825		C	III	2726.70	2725.90	220	33.	34	
CL	III	2724.84	2724.03	500		43		MN	II	2726.739	2725.932	140		329	
CL	IV	2724.84	2724.03	500		43		FE	I	2726.862	2726.055	80	48.	896	
CR	II	2724.85	2724.04	65	102.	340		MN	I	2726.94	2726.13	100	11.	148	
MN	II	2724.96	2724.15	30		328		CL	II	2727.000	2726.192	10		613	
SC	II	2724.97	2724.16	1		1028		FE	I	2727.0425	2726.2351	50	161.	896	
NI	II	2724.972	2724.165	3		835		P	IV	2727.058	2726.251	25		937	
FE	I	2725.146	2724.339	12		896		FE	II	2727.060	2726.254	40	434.	488	
V	II	2725.21	2724.40	2		478		CR	II	2727.07	2726.26	15	162.	340	
MN	II	2725.272	2724.465	170	33.	328		CR	I	2727.302	2726.496	75	7.	341	
CR	II	2725.36	2724.55	1		340		FE	II	2727.315	2726.509	40	261.	488	H
V	II	2725.42	2724.61	5		478		V	II	2727.350	2726.544	40	47.	478	
FE	I	2725.477	2724.670	10		896	M	SE	III	2727.36	2726.55	30		587	
NI	II	2725.532	2724.725	50		835		SI	II	2727.509	2726.702	5	19.	678	
CU	I	2725.548	2724.742	1		672		FE	II	2727.615	2726.809	1		645	
P	IV	2725.571	2724.764	300		937		S	III	2727.63	2726.82	350	20.	323	
NE	I	2725.578	2724.772	74		796		O	III	2727.76	2726.95	4		168	
CR	II	2725.64	2724.76	1		340		MN	II	2727.801	2726.994	60		328	
AR	III	2725.65	2724.84	100	9.	488		FE	V	2727.82	2727.01			229	F
C	III	2725.66	2724.85	160	33.	34		BR	II	2727.843	2727.037	250		606	
FE	II	2725.691	2724.884	30		896	H	V	I	2727.930	2727.124	1		1000	
SI	V	2725.73	2724.92	100		941		CO	II	2727.98	2727.18	2		825	
FE	I	2725.7601	2724.9531	125	48.	896		CR	II	2728.06	2727.25	85	102.	340	
V	I	2725.867	2725.062	4	8.	1000		F	III	2728.123	2727.315	80		537	
TI	I	2725.890	2725.084	100	32.	488		C	II	2728.170	2727.360	10	31.	287	
FE	I	2726.092	2725.285	8		896	M	MN	I	2728.188	2727.381	1		148	
C	III	2726.10	2725.30	220	33.	34		FE	II	2728.191	2727.383	25	200.	896	H
FE	I	2726.118	2725.311	1	98.	378		TI	I	2728.222	2727.416	80	32.	488	
BR	II	2726.13	2725.32	10		606		V	I	2728.246	2727.440	1		1000	
FE	I	2726.1363	2725.3292	5		896		FE	II	2728.346	2727.538	80	63.	896	H
CR	I	2726.16	2725.35	1		341		ZN	III	2728.37	2727.56	10		162	
MN	II	2726.36	2725.55	15		328		MN	II	2728.392	2727.584	140		328	
CO	II	2726.37	2725.56	3		825		CR	II	2728.40	2727.59	1	162.	340	
CU	III	2726.380	2725.573	5		724		CL	III	2728.5	2727.7	200		43	
FE	I	2726.4085	2725.6014	12	48.	896		CU	II	2728.5026	2727.6949	2		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	IV	2728.587	2727.780	1		829		FE	II	2730.376	2729.569	5	417.	488	
CO	II	2728.595	2727.787	15	30.	825		CR	I	2730.39	2729.58	2		341	
V	II	2728.735	2727.929	6	47.	478		SC	II	2730.41	2729.60	1		1028	
NI	II	2728.750	2727.943	1		835		MN	II	2730.420	2729.614	20		328	
F	III	2728.767	2727.959	200		537		V	II	2730.45	2729.64	1		478	
FE	I	2728.8275	2728.0197	140	47.	896		NI	II	2730.520	2729.712	3		835	
MN	II	2728.882	2728.075	50		328		CR	II	2730.54	2729.73	6	162.	340	
SI	V	2728.924	2728.117	450		941		GE	II	2730.583	2729.775	400	16.	676	
CR	II	2728.98	2728.17	15	162.	340		V	I	2730.614	2729.807	2		1000	
CU	II	2729.012	2728.204	1		612		CO	II	2730.64	2729.83	3		825	
LI	II	2729.047	2728.239	0		307		CR	I	2730.66	2729.85	3		341	
LI	II	2729.096	2728.288	100		307		CR	I	2730.88	2730.07	3		341	
LI	II	2729.123	2728.315	40		307		FE	V	2731.02	2730.21			229	F
CR	I	2729.25	2728.44	3		341		CR	II	2731.06	2730.25	2		340	
FE	III	2729.279	2728.473	25		188		CU	III	2731.076	2730.267	15		724	
FE	II	2729.374	2728.567	20		488	N	LI	II	2731.281	2730.473	60		307	
MN	II	2729.425	2728.617	170		328		CA	XVI	2731.3	2730.5			913	F P
V	II	2729.451	2728.644	150	1.	478		AR	II	2731.31	2730.50	5		506	
NI	II	2729.491	2728.683	3		835		LI	II	2731.359	2730.551	20		307	
C	II	2729.515	2728.707	40	31.	287		SE	III	2731.38	2730.57	1		587	
NI	III	2729.541	2728.732	30		661		GE	II	2731.403	2730.591	20	16.	676	
CO	I	2729.560	2728.754	3		603		V	II	2731.41	2730.60	2		478	
P	IV	2729.578	2728.770	400		937		C	II	2731.420	2730.610	4	31.	287	
SC	IV	2729.601	2728.794	40		720		AR	II	2731.48	2730.67	5		506	
FE	I	2729.6275	2728.8196	50	154.	896		FE	I	2731.508	2730.700	10		896	M
MN	II	2729.670	2728.862	20		328		FE	II	2731.542	2730.734	40	62.	896	H
BE	II	2729.685	2728.877	15	7.	332		CO	II	2731.59	2730.78	3		825	
FE	II	2729.713	2728.905	80	260.	896		MN	II	2731.667	2730.861	10		328	
CR	II	2729.74	2728.93	2	162.	340		TI	II	2731.76	2730.95	6	23.	488	
FE	I	2729.7770	2728.9690	8	4.	896		FE	I	2731.7904	2730.9819	40	48.	896	
CO	II	2729.90	2729.09	2		825		CR	II	2731.85	2731.04	3		340	
V	I	2729.927	2729.120	2		1000		CR	III	2731.87	2731.07	20		490	
P	IV	2729.928	2729.120	200		937		S	III	2731.91	2731.10	350	16.	323	
CR	II	2729.96	2729.15	1		340		CO	I	2731.919	2731.112	50	140.	603	
C	II	2730.021	2729.213	10	31.	287		V	II	2731.93	2731.12	4		478	
FE	II	2730.137	2729.329	5		896		TI	I	2731.952	2731.145	40	31.	488	
O	V	2730.15	2729.34	25		83		FE	II	2732.052	2731.243	8	431.	896	
SC	I	2730.15	2729.34	0		1030	M	FE	I	2732.0900	2731.2814	5	161.	896	
MN	I	2730.226	2729.420	10	40.	148		V	I	2732.154	2731.347	80	85.	1000	
FE	II	2730.234	2729.427	5	220.	488		NE	I	2732.165	2731.358	3		723	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
N	II	2732.18	2731.37	5	54.	200		CR	I	2733.81	2733.00	1	51.	341	
CR	II	2732.21	2731.40	4		340		V	II	2733.81	2733.00	5		478	
O	V	2732.26	2731.45	15		83		AR	II	2733.831	2733.022	40		506	
CU	III	2732.275	2731.466	25		724		BE	IV	2733.871	2733.062			309	
CO	II	2732.31	2731.50	10		825		MN	II	2733.94	2733.13	30		328	
NI	II	2732.326	2731.517	3		835		MN	I	2733.975	2733.167	1		148	
V	I	2732.328	2731.518	20		1000		TI	I	2734.073	2733.265	300	32.	488	
NE	I	2732.336	2731.528	3		723		HE	II	2734.106	2733.297			309	
TI	I	2732.400	2731.592	70	32.	488		V	I	2734.142	2733.334	8	8.	1000	
AR	II	2732.448	2731.639	10		506		O	II	2734.15	2733.34	250	20.	488	
NI	II	2732.451	2731.642	5		835		NI	III	2734.258	2733.466	50		661	
MN	II	2732.494	2731.686	50		328		CO	II	2734.28	2733.57	1		825	
FE	II	2732.649	2731.841	20		488	N	MG	I	2734.362	2733.493	40	9.	1017	
CR	I	2732.703	2731.895	65	7.	341		CR	I	2734.32	2733.51	8	56.	341	
CU	II	2732.7567	2731.9480	50		612		TI	I	2734.37	2733.56		31.	488	
MG	I	2732.802	2731.993	25	9.	1017		FE	I	2734.3898	2733.5807	320	46.	896	
FE	II	2732.817	2732.008	5	236.	896		CO	II	2734.54	2733.73	1		825	
MN	III	2732.830	2732.021	1		301		CR	I	2734.57	2733.76	2		341	
V	II	2732.98	2732.17	10		478		F	III	2734.584	2733.775	80		537	
P	IV	2733.045	2732.236	40		937		CR	IX	2734.6	2733.8			726	F
MN	I	2733.067	2732.260	2		148		AR	II	2734.618	2733.809	10		506	
FE	II	2733.136	2732.328	20		488	N	MN	II	2734.703	2733.894	50		328	
AS	II	2733.139	2732.330	0		425		V	II	2734.714	2733.906	25	1.	478	
AR	II	2733.144	2732.335	10		506		CR	II	2734.74	2733.93	2		340	
CR	II	2733.22	2732.41	2	185.	340		ZN	III	2734.80	2733.99	10		162	
FE	II	2733.249	2732.441	20	32.	488	H	FE	I	2734.8145	2734.0053	60	48.	896	
AR	II	2733.3109	2732.5020	90		867		SC	III	2734.857	2734.048	460	3.	855	
F	III	2733.353	2732.544	50		537		CR	II	2734.88	2734.07	3	60.	340	
P	II	2733.41	2732.60	00		431		MN	I	2734.972	2734.164	1		148	
NE	I	2733.42	2732.61	1		723		FE	I	2735.0769	2734.2676	50	125.	896	
NI	II	2733.517	2732.708	3		835		V	II	2735.08	2734.27	15		478	
FE	I	2733.587	2732.778	1		378		MN	I	2735.105	2734.297	1	40.	148	
CO	II	2733.649	2732.840	15		825		MN	II	2735.280	2734.473	30		328	
CO	I	2733.656	2732.848	2		603		CO	II	2735.375	2734.566	3		825	
ZN	II	2733.7	2732.9	5		154		CR	II	2735.38	2734.57	15	253.	340	
V	II	2733.73	2732.92	5	1.	478		SI	V	2735.398	2734.590	200		941	
F	III	2733.732	2732.923	12		537		FE	I	2735.4252	2734.6159	30	47.	896	
FE	II	2733.744	2732.936	40	417.	488		FE	II	2735.463	2734.655	20	381.	488	
CR	I	2733.76	2732.95	2	51.	341		N	II	2735.511	2734.702	20	28.	200	
CO	II	2733.79	2732.98	2		825		MN	I	2735.544	2734.736	15	39.	148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NE	I	2735.564	2734.755	2		723		F	III	2738.040	2737.230	50		537	
FE	II	2735.612	2734.803	20	416.	488		CO	II	2738.11	2737.30	3		825	
CA	I	2735.63	2734.82		1.	488		FE	I	2738.1196	2737.3096	220	5.	896	
CU	I	2735.666	2734.858	10	39.	672		CU	II	2738.1517	2737.3417	125	130.	612	
AS	II	2735.803	2734.993	0		425		CR	II	2738.28	2737.47	4	120.	340	
MN	I	2735.805	2734.997	4		148		AS	II	2738.293	2737.483	0		425	
O	III	2735.95	2735.14	4		168		CU	III	2738.301	2737.491	1		724	
NE	I	2735.977	2735.168	3		723		MN	II	2738.381	2737.570	80		328	
TI	I	2736.107	2735.298	100	32.	488		CU	I	2738.417	2737.608	2	39.	672	
MN	I	2736.118	2735.310	1		148		FE	II	2738.439	2737.630	70	200.	488	
CO	II	2736.26	2735.45	5		825		MN	I	2738.448	2737.640	2		148	
FE	I	2736.2847	2735.4751	220	46.	896		FE	I	2738.4500	2737.6399	0	153.	896	
SC	II	2736.42	2735.61	0		1028		CR	II	2738.47	2737.66	3	120.	340	
FE	I	2736.4216	2735.6120	50	125.	896		NI	II	2738.488	2737.678	3		835	
TI	I	2736.422	2735.613	60	26.	488		FE	I	2738.643	2737.832	110		896	
NE	I	2736.50	2735.69	8		723		F	III	2738.785	2737.975	300		537	
CR	II	2736.57	2735.76	12	334.	340		BE	I	2738.860	2738.050	25	2.	333	
BR	III	2736.66	2735.85	10		586		V	I	2738.884	2738.075	5	85.	1000	
N	II	2736.771	2735.962		21.0	521	P	SE	II	2738.97	2738.16	150	19.	468	
GE	IV	2736.90	2736.09	30		406		CR	I	2738.98	2738.17	1		341	
V	II	2736.93	2736.12	4	218.	478		FE	I	2739.0237	2738.2135	5	48.	896	
NE	I	2736.983	2736.174	116		796		MN	II	2739.108	2738.298	30		328	
CR	II	2737.01	2736.20	2	184.	340		CO	II	2739.13	2738.30	8		825	
ZN	III	2737.1	2736.3	1		162		ZN	II	2739.13	2738.32	10		154	
MN	II	2737.22	2736.41	5		328		CR	II	2739.32	2738.51	1		340	
CR	I	2737.27	2736.463	50	7.	341		MN	I	2739.361	2738.552	5		148	
FE	II	2737.30	2736.500	5	220.	488		CU	III	2739.463	2738.652	3		724	
MG	I	2737.35	2736.542	60	9.	1017		CR	II	2739.48	2738.67	2	162.	340	
V	II	2737.50	2736.69	10	87.	478		TI	II	2739.51	2738.70	3	23.	488	
TI	I	2737.52	2736.71	20	31.	488		MN	I	2739.670	2738.861	25	38.	148	
CR	II	2737.54	2736.73	5	61.	340		NI	II	2739.701	2738.890	20		835	
F	V	2737.72	2736.91	1		176		CO	II	2739.761	2738.951	10		825	
CO	II	2737.75	2736.94			825		SE	III	2739.77	2738.96	30		587	
FE	I	2737.7739	2736.9633	8	49.	896		MN	III	2739.868	2739.057	1		301	
FE	II	2737.777	2736.968	650	63.	488	H	F	III	2739.913	2739.102	150		537	
MN	II	2737.831	2737.022	40		328		O	III	2739.96	2739.15	1		168	
CR	II	2737.90	2737.09	15	120.	340		V	II	2739.99	2739.18	8		478	
MN	II	2737.932	2737.121	40		328		NE	II	2740.044	2739.233	5		563	
CR	II	2738.00	2737.19	3	61.	340		P	IV	2740.119	2739.309	500		937	
CR	I	2738.031	2737.222	8	57.	341		CR	I	2740.204	2739.395	20	63.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	III	2740.21	2739.40	1		661		AR	II	2741.878	2741.067	20		506	
N	II	2740.227	2739.417		17.0	521	P	AR	II	2741.8788	2741.0679	50		867	
N	II	2740.234	2739.424		21.0	521	P	CR	II	2741.88	2741.07	8		340	
CO	II	2740.25	2739.44	8		825		CR	I	2741.887	2741.078	22	63.	341	
P	III	2740.261	2739.451	120		936		FE	I	2741.9124	2741.1015	8	181.	896	
CO	II	2740.34	2739.53	10		825		SI	VIII	2742.	2741.			843	H
FE	II	2740.357	2739.546	200	63.	896	H	LI	I	2742.014	2741.204	160	1.	488	
NE	II	2740.360	2739.550	20		563		MN	II	2742.11	2741.30	0		328	
F	II	2740.366	2739.555	25		538		FE	II	2742.135	2741.325	1	417.	488	
MN	I	2740.436	2739.627	4		148		FE	II	2742.205	2741.395	160	260.	488	H
NI	II	2740.460	2739.649	2		835		V	II	2742.372	2741.563	4	1.	478	
V	II	2740.524	2739.715	100	1.	478		FE	I	2742.3878	2741.5767	1	98.	896	
CR	II	2740.55	2739.74	7	185.	340		AS	II	2742.393	2741.582	150		425	
NI	II	2740.571	2739.761	3		835		FE	II	2742.483	2741.673	M		645	
CU	II	2740.5770	2739.7664	90	174.	612		TI	I	2742.63	2741.82	10	31.	488	
TI	I	2740.614	2739.804	150	32.	488		NE	II	2742.748	2741.937	10		563	
MN	II	2740.65	2739.84	3		328		FE	III	2742.761	2741.952	10	90.	188	
P	IV	2740.683	2739.872	250		937		AR	II	2742.773	2741.962	10		506	
CR	II	2740.90	2740.09	35	6.	340		CU	III	2742.778	2741.967	2		724	
MN	I	2740.970	2740.161	1	38.	148		FE	I	2742.8268	2742.0156	10	4.	896	
V	III	2740.99	2740.18	20		325		CR	II	2742.83	2742.02	70	6.	340	
MN	II	2741.03	2740.22	30		328		CO	II	2742.86	2742.05	2		825	
P	IV	2741.033	2740.223	200		937		CR	I	2742.974	2742.165	20	63.	341	
F	III	2741.095	2740.284	150		537		V	I	2743.060	2742.250	2		489	
AR	II	2741.144	2740.333	10		506		FE	I	2743.0654	2742.2542	155	46.	896	
GE	I	2741.2372	2740.4264	60	23.	7		TI	I	2743.11	2742.30	150	25.	488	
CO	I	2741.266	2740.457	50	109.	603		TI	II	2743.11	2742.30	8		601	
V	IV	2741.354	2740.545	5		829		NI	II	2743.170	2742.359	3		835	
MN	I	2741.355	2740.546	3		148		CO	II	2743.21	2742.40	3		825	
V	V	2741.480	2740.670	100		929		FE	I	2743.2168	2742.4055	280	5.	896	
MN	II	2741.597	2740.786	100		328		V	II	2743.24	2742.43	25	1.	478	
TI	I	2741.69	2740.88	20	31.	488		MN	II	2743.278	2742.467	20		328	
AR	II	2741.723	2740.912	10		506		NI	II	2743.301	2742.489	3		835	
MN	II	2741.75	2740.94	10		328		SI	V	2743.343	2742.532	400		941	
ZN	II	2741.75	2740.94	10		154		V	II	2743.480	2742.670	30	13.	478	
V	IV	2741.777	2740.966	5		829		CO	II	2743.51	2742.70	3		825	
V	II	2741.79	2740.98	7	218.	478		MN	I	2743.545	2742.735	15		148	
AL	I	2741.791	2740.980	25		198		NI	II	2743.642	2742.831	180	66.	835	
S	III	2741.82	2741.01	250	16.	323		MN	I	2743.740	2742.930	1		148	
FE	II	2741.855	2741.045	20	418.	488		CR	I	2743.79	2742.98	3	16.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	V	2743.79	2742.98			229	F	NI	III	2745.812	2745.001	20		661	
MN	II	2743.992	2743.180	80		328		MN	I	2745.893	2745.082	3	38.	148	
P	III	2743.995	2743.183	1		936		CO	I	2745.908	2745.098	50	140.	603	
CO	I	2744.00	2743.19	2		825		AS	II	2745.941	2745.129	5		425	
FE	I	2744.008	2743.196	140	62.	896	H	BR	III	2745.97	2745.16	30		586	
MN	I	2744.256	2743.446	10		148		CU	II	2746.0832	2745.2712	275	150.	612	
V	IV	2744.335	2743.523	20		829		AS	II	2746.086	2745.274	170		425	
NE	I	2744.34	2743.53	15		723		CR	II	2746.22	2745.41	12	185.	340	
K	II	2744.36	2743.55	70	6.	488		CU	I	2746.263	2745.452	20	64.	672	
FE	I	2744.3766	2743.5651	125	47.	896		CA	I	2746.30	2745.49	2	10.	488	
O	V	2744.39	2743.58	15		83		CO	II	2746.30	2745.49	10		825	
F	III	2744.40	2743.59	30		537		MN	II	2746.310	2745.498	60		328	
CR	II	2744.44	2743.63	70	6.	340		CR	I	2746.344	2745.534	1		341	
V	II	2744.578	2743.768	20	13.	478		F	III	2746.347	2745.535	80		537	
MN	I	2744.600	2743.790	5		148		MN	I	2746.359	2745.549	10	38.	148	
CR	II	2744.75	2743.94	6	184.	340		MN	II	2746.544	2745.732	60		328	
CU	III	2744.752	2743.940	5		724		CL	II	2746.56	2745.75	6		345	
MN	I	2744.834	2744.023	9	38.	148		SE	III	2746.67	2745.86	30		587	
CO	II	2744.85	2744.04	2		825		V	II	2746.703	2745.893	6	66.	478	
FE	I	2744.8795	2744.0679	140	5.	896		MN	I	2746.724	2745.913	2		148	
CL	II	2745.06	2744.25	2		345		FE	III	2746.745	2745.935	10		188	
MN	I	2745.078	2744.268	6	38.	148		FE	I	2746.764	2745.952	0		378	
CU	I	2745.16	2744.35	1		672		CO	I	2746.838	2746.028	50	108.	603	
F	IV	2745.32	2744.51	4		173		MN	II	2746.935	2746.124	8		328	
MN	I	2745.329	2744.519	6		148		BR	II	2746.946	2746.134	10		606	
FE	I	2745.3392	2744.5274	80	46.	896		CR	II	2746.96	2746.15	15	138.	340	
V	II	2745.35	2744.54	4	13.	478		FE	II	2746.969	2746.157	70	373.	488	
CR	II	2745.40	2744.59	25	334.	340		CR	II	2747.02	2746.21	50	58.	340	
N	II	2745.489	2744.678		17.0	521	P	SC	I	2747.24	2746.43	1		1030	M
FE	II	2745.501	2744.691	0		645		CO	II	2747.294	2746.481	4		825	
MN	I	2745.559	2744.748	1		148		FE	II	2747.295	2746.483	170	62.	896	H
CO	II	2745.57	2744.76	2		825		C	II	2747.300	2746.488	250	15.	287	
AR	II	2745.609	2744.797	60		506		BR	II	2747.328	2746.516	500		606	
V	II	2745.61	2744.80	1		478		MN	II	2747.42	2746.61	10		328	
TI	I	2745.657	2744.846	50	30.	488		N	II	2747.493	2746.681		17.0	521	P
FE	II	2745.701	2744.890	40	260.	488		TI	II	2747.51	2746.70	30	31.	488	
MN	II	2745.715	2744.902	80		328		CU	I	2747.524	2746.713	20	48.	672	
CR	II	2745.78	2744.97	40	58.	340		NI	I	2747.555	2746.743	25	26.	498	
AR	II	2745.80	2744.98	10		506		CO	II	2747.767	2746.955	4		825	
AS	I	2745.81	2745.00	50	16.	480		FE	II	2747.790	2746.978	870	63.	488	H



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	I	2747.795	2746.982	40	45.	896		CU	I	2750.20	2749.39	1		672	
ZN	II	2747.8	2747.0	10		154		P	II	2750.24	2749.43	0		431	
NI	III	2747.97	2747.16	1		661		V	II	2750.29	2749.48	8	218.	478	
SC	I	2747.97	2747.16	1		1030	M	FE	II	2750.298	2749.485	220	63.	896	H
C	II	2748.094	2747.282	350	15.	287		MN	II	2750.37	2749.56	1		328	
V	II	2748.126	2747.313	15		782		CO	II	2750.43	2749.61	2		825	
MN	II	2748.132	2747.320	80		328		FE	I	2750.501	2749.688	0	49.	378	
O	II	2748.27	2747.46	90	20.	488		MN	II	2750.503	2749.689	40		328	
V	II	2748.273	2747.462	80	135.	478		BR	III	2750.51	2749.70	10		586	
V	I	2748.345	2747.534	6	8.	1000		CU	I	2750.546	2749.734	2	56.	672	
FE	I	2748.3674	2747.5549	1	125.	896		CR	II	2750.63	2749.82	20	253.	340	
P	II	2748.443	2747.630	5		496		CO	II	2750.69	2749.88	15		825	
P	III	2748.527	2747.715	1		936		S	III	2750.75	2749.94	3		598	
CR	II	2748.57	2747.76	7	185.	340		V	II	2750.78	2749.97	7	218.	478	
NI	II	2748.592	2747.780	15		835		FE	II	2750.816	2750.003	20	199.	488	
MN	I	2748.596	2747.785	4		148		MN	II	2750.939	2750.126	140	46.	328	
MN	II	2748.65	2747.84	10		328		CO	I	2750.952	2750.141	15		603	
F	III	2748.694	2747.882	375		537		FE	I	2750.9537	2750.1405	340	5.	896	
NI	II	2748.733	2747.920	2		835		P	IV	2751.011	2750.198	10		937	
CR	II	2748.75	2747.94	12		340		V	II	2751.10	2750.29	8	198.	478	
MN	II	2748.771	2747.956	60		328		NI	II	2751.288	2750.475	5		835	
CL	II	2748.805	2747.992	10		613		CR	I	2751.32	2750.51	2		341	
AS	II	2748.820	2748.007	10		425		BR	III	2751.41	2750.60	30		585	
AL	I	2748.878	2748.065	15		198		MN	I	2751.414	2750.602	3		148	
MN	II	2749.04	2748.23	10		328		FE	I	2751.5099	2750.6967	5	125.	896	
CR	I	2749.085	2748.275	50	15.	341		CR	II	2751.53	2750.72	100	6.	340	
CR	II	2749.14	2748.33	4		340		CU	I	2751.598	2750.786	5		672	
AR	II	2749.145	2748.332	10		506		FE	I	2751.6868	2750.8735	30	128.	896	
CO	II	2749.20	2748.39	6		825		FE	V	2751.69	2750.88			229	F
CR	I	2749.39	2748.58	3	63.	341		FE	II	2751.709	2750.896	40	200.	488	
CU	I	2749.41	2748.60	1		672		F	III	2751.742	2750.929	12		537	
MN	II	2749.511	2748.698	60		328		CR	II	2751.85	2751.04	4	120.	340	
CR	II	2749.79	2748.98	100	6.	340		NI	III	2751.887	2751.066	2		661	
TI	I	2749.875	2749.062	50	30.	488		FE	II	2751.938	2751.125	20	217.	896	H
FE	II	2749.991	2749.178	750	63.	488	H	CL	IX	2752.	2751.			111	
MN	I	2750.016	2749.205	20	38.	148		CR	II	2752.03	2751.22	4	120.	340	
F	III	2750.12	2749.30	4		537		CL	IV	2752.04	2751.23	500		43	
CO	II	2750.125	2749.312	4		825		CU	I	2752.10	2751.29	10	47.	672	
FE	II	2750.133	2749.320	100	62.	896	H	ZN	III	2752.12	2751.31	10		162	
CA	I	2750.15	2749.34	2	10.	488		CU	III	2752.143	2751.330	20		724	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CL	II	2752.318	2751.504	15		613		NI	II	2754.099	2753.285	10		835	
CR	II	2752.33	2751.52	3		340		FE	II	2754.101	2753.287	80	235.	896	H
V	IV	2752.342	2751.528	10		829		BR	III	2754.12	2753.31	10		586	
FE	II	2752.367	2751.555	1		645		CO	II	2754.15	2753.34	8		825	
CR	I	2752.39	2751.58	18	15.	341		V	II	2754.219	2753.407	150	150.	478	
MN	II	2752.410	2751.597	80		328		MN	II	2754.271	2753.457	40		328	
CO	II	2752.49	2751.67	5		825		CR	II	2754.47	2753.63	20	58.	340	
TI	II	2752.51	2751.70	50	31.	488		FE	I	2754.500	2753.686	50	46.	896	
F	III	2752.582	2751.769	150		537		MN	I	2754.664	2753.851	3		148	
V	II	2752.60	2751.79	10		478		CR	II	2754.71	2753.90	15		340	
CA	III	2752.611	2751.698	15		64		MN	II	2754.801	2753.987	50		328	
FE	I	2752.6164	2751.8029	4		896		MN	I	2754.807	2753.995	3		148	
CU	I	2752.622	2751.810	10	63.	672		CL	II	2754.844	2754.029	11		613	
C	III	2752.642	2751.828	40	34.	34		FE	I	2754.8465	2754.0324	125	47.	896	
CR	II	2752.66	2751.85	85	6.	340		CL	II	2754.915	2754.101	57		613	
MN	II	2752.77	2751.96	15		328		FE	II	2754.967	2754.155	20		488	N
BR	III	2752.80	2751.99	10		586		MN	II	2755.016	2754.203	80	46.	328	
CO	I	2752.882	2752.070	40	138.	603		AS	II	2755.067	2754.253	0		425	
FE	II	2752.903	2752.092	40	418.	488		CO	I	2755.08	2754.26	1		603	
V	II	2752.92	2752.11	15		478		CR	II	2755.09	2754.28	30	101.	340	
FE	II	2752.964	2752.150	20	373.	896		FE	I	2755.2399	2754.4258	100	47.	896	
SC	I	2752.97	2752.16	1		1030	M	MN	II	2755.265	2754.451	30		328	
CR	I	2753.02	2752.21	1		341		GE	I	2755.4020	2754.5878	150	1.	7	
O	V	2753.05	2752.24	25		83		MN	III	2755.429	2754.615	7		301	
MN	I	2753.071	2752.259	3		148		CR	II	2755.47	2754.66	2		340	
MN	I	2753.134	2752.322	7		148		O	V	2755.51	2754.70	15		83	
CR	II	2753.18	2752.37	10	253.	340		CO	II	2755.56	2754.75	3		825	
MN	II	2753.23	2752.42	15		328		CR	I	2755.633	2754.821	15	79.	341	
P	III	2753.274	2752.461	60		936		AR	II	2755.6818	2754.8675	20		867	
O	III	2753.28	2752.47	1		168		FE	II	2755.703	2754.888	20	373.	896	
MN	I	2753.448	2752.635	3		148		NI	II	2755.743	2754.929	2		835	
F	III	2753.623	2752.809	110		537		FE	I	2755.757	2754.942	12		896	M
TI	II	2753.66	2752.85	4	33.	488		AS	II	2755.856	2755.041	1		425	
CR	I	2753.663	2752.851	50	15.	341		V	II	2755.86	2755.05	10		478	
FE	II	2753.845	2753.034	20	417.	488		SC	IV	2755.882	2755.070	40		720	
V	I	2753.896	2753.084	8		1000		FE	II	2755.900	2755.088	1	373.	488	
FE	I	2753.991	2753.098	12		896	M	O	V	2755.92	2755.11	100		83	
MN	II	2754.000	2753.186	40		328		V	III	2755.96	2755.15	2		325	
F	III	2754.06	2753.25	30		537		ZN	III	2755.96	2755.15	20		162	
CO	II	2754.074	2753.260	8	29.	825		CR	II	2755.99	2755.18	2	185.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2755.9953	2755.1809	15	153.	896		O	V	2757.79	2756.98	7		83	
NI	II	2756.022	2755.208	75		835		FE	II	2757.845	2757.030	8	199.	896	H
CR	I	2756.05	2755.24	8	16.	341		CR	I	2757.899	2757.086	40	15.	341	
P	II	2756.08	2755.27	0		431		CL	II	2757.970	2757.155	4		613	
CR	I	2756.10	2755.29	10		341		CO	II	2758.10	2757.28	1		825	
F	III	2756.121	2755.307	300		537		AR	II	2758.119	2757.304	30		506	
CO	II	2756.33	2755.52	8		825		FE	I	2758.1306	2757.3157	100	46.	896	
CR	II	2756.34	2755.53	15	101.	340		CU	II	2758.1434	2757.3285	3		612	
F	III	2756.364	2755.550	520		537		P	II	2758.21	2757.39	0		431	
V	I	2756.466	2755.653	10		1000		CA	I	2758.21	2757.40	4	10.	488	
CU	I	2756.51	2755.69	5		672		TI	I	2758.210	2757.397	60	30.	488	
CO	II	2756.54	2755.73	2		825		FE	I	2758.237	2757.422	30		896	M
FE	II	2756.549	2755.734	280	62.	896	H	MN	II	2758.30	2757.51	1		328	
MN	I	2756.590	2755.777	2		148		FE	I	2758.350	2757.535	8		896	M
CR	II	2756.62	2755.81	10	101.	340		MN	III	2758.380	2757.565	10		301	
NE	I	2756.63	2755.82	15		723		TI	II	2758.43	2757.62	3	33.	488	
MN	I	2756.653	2755.839	2		148		CR	II	2758.53	2757.72	80	6.	340	
O	V	2756.73	2755.91	7		83		V	I	2758.56	2757.75	2		1000	
MN	II	2756.82	2756.01	1		328		NI	II	2758.576	2757.761	20		835	
FE	I	2756.901	2756.086	4		896	M	FE	II	2758.651	2757.836	5		896	
MN	III	2756.973	2756.158	15		301		FE	I	2758.673	2757.858	5		896	
MN	II	2756.995	2756.180	30		328		AR	IV	2758.73	2757.92	140	6.	488	
O	III	2757.03	2756.22	4		169		MN	II	2758.75	2757.93	30		328	
MN	I	2757.081	2756.267	4		148		TI	I	2758.874	2758.061	200	35.	488	
FE	I	2757.0818	2756.2672	4	4.	896		MN	II	2758.892	2758.076	80		328	
CR	II	2757.11	2756.30	40	101.	340		O	IV	2758.98	2758.16	120		66	
FE	I	2757.1430	2756.3284	155	5.	896		CU	I	2759.035	2758.221	1		672	
MN	II	2757.144	2756.330	40		329		MN	II	2759.04	2758.22	10		328	
CO	II	2757.15	2756.33	1		825		CR	I	2759.049	2758.236	10	101.	341	
V	II	2757.19	2756.38	4	152.	478		TI	II	2759.16	2758.35	2	33.	489	
ZN	I	2757.265	2756.452	120	5.	830		P	III	2759.161	2758.346	90		936	
FE	II	2757.324	2756.509	6	200.	896		MN	II	2759.26	2758.44	80		328	
V	II	2757.39	2756.58	20	218.	478		CR	I	2759.29	2758.48	3		341	
CO	II	2757.43	2756.62	1		825		V	II	2759.34	2758.53	9	13.	478	
NE	II	2757.4333	2756.6186	70	10.	389		CO	I	2759.351	2758.538	30	128.	603	
F	III	2757.491	2756.676	375		537		CR	II	2759.42	2758.61	15	139.	340	
CR	I	2757.58	2756.77	10	79.	341		NE	I	2759.45	2758.64	3		723	
CR	II	2757.70	2756.89	15	101.	340		CL	II	2759.498	2758.683	23		613	
S	III	2757.70	2756.89	400	16.	323		FE	I	2759.564	2758.749	4		896	M
CR	II	2757.77	2756.96	20	100.	340		V	II	2759.623	2758.810	15	134.	478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	III	2759.660	2758.845	15		301		FE	I	2761.438	2760.623	1	127.	378	
ZN	II	2759.68	2758.87	10		154		FE	V	2761.45	2760.64			229	F
NI	II	2759.690	2758.874	120	66.	835		NI	II	2761.487	2760.671	15	55.	835	
TI	II	2759.74	2758.93	1	33.	488		V	II	2761.524	2760.710	60	149.	478	
MN	I	2759.764	2758.950	4		148		FE	II	2761.571	2760.757	0	433.	488	
CR	II	2759.80	2758.99	40	252.	340		CR	II	2761.64	2760.83	15		340	
FE	I	2759.808	2758.933	1		378		AS	II	2761.650	2760.834	3		425	
O	IV	2759.87	2759.05	90		86		FE	I	2761.707	2760.891	25		896	M
V	II	2759.89	2759.08	2		478		MN	I	2761.734	2760.920	100	9.	148	
BR	III	2759.92	2759.11	50		586		MN	II	2761.74	2760.92	100		328	
V	II	2760.03	2759.22	1	46.	478		MN	II	2761.823	2761.006	100		328	
CR	II	2760.04	2759.23	7		340		CU	II	2761.9021	2761.0863	2		612	
NE	I	2760.136	2759.323	2		723		FE	II	2761.942	2761.128	20		488	N
FE	II	2760.149	2759.336	20	32.	488	H	CR	II	2761.97	2761.16	5	60.	340	
CR	II	2760.21	2759.40	50	101.	340		FE	II	2761.998	2761.183	8		896	
GE	II	2760.224	2759.409	10		676		MN	II	2762.027	2761.213	0		328	
P	IV	2760.236	2759.421	40		937		TI	II	2762.105	2761.291	7	12.	488	
MN	II	2760.250	2759.432	20		328		MN	II	2762.131	2761.315	40	46.	328	
FE	I	2760.294	2759.479	6		896	M	AR	II	2762.14	2761.33	5		506	
V	II	2760.41	2759.60	15	218.	478		V	II	2762.15	2761.34	3		782	
CU	II	2760.4226	2759.6072	3		612		MN	I	2762.164	2761.350	4		148	
MN	III	2760.433	2759.618	7		301		CO	I	2762.180	2761.366	75	52.	603	
F	III	2760.444	2759.629	800		537		FE	I	2762.265	2761.449	8		896	M
CR	I	2760.48	2759.67	8	79.	341		NI	II	2762.268	2761.452	2		835	
CR	II	2760.54	2759.73	30	101.	340		FE	I	2762.2961	2761.4802	4	140.	896	
MN	III	2760.602	2759.787	10		301		FE	II	2762.449	2761.635	20		488	N
FE	I	2760.628	2759.813	50		896		CR	I	2762.549	2761.735	40	15.	341	
CR	I	2760.65	2759.84	12	101.	341		FE	I	2762.5957	2761.7798	110	46.	896	
F	III	2760.654	2759.839	250		537		MN	I	2762.611	2761.797	3		148	
BR	III	2760.70	2759.89	120		586		NI	II	2762.621	2761.805	1		835	
MN	II	2760.76	2759.94	1		328		FE	II	2762.628	2761.812	125	63.	896	H
CR	II	2760.85	2760.04	20	184.	340		SC	IV	2762.741	2761.927	1		720	
CO	II	2760.93	2760.11	8		825		MN	I	2762.800	2761.985	2		148	
V	II	2760.936	2760.122	40	77.	478		FE	I	2762.8424	2762.0264	125	46.	896	
CR	II	2761.01	2760.20	12	101.	340		CA	I	2762.86	2762.05	4	9.	488	
CU	I	2761.07	2760.25	2		672		MN	II	2762.904	2762.088	140	73.	328	
MN	II	2761.13	2760.31	100		328		TI	II	2763.03	2762.22	2	12.	488	
CR	II	2761.17	2760.36	20	100.	340		P	II	2763.13	2762.31	0		431	
FE	II	2761.319	2760.505	M		645		NE	I	2763.138	2762.324	3		723	
CR	II	2761.34	2760.53	25	253.	340		FE	II	2763.154	2762.340	70	373.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	I	2763.20	2762.38	1		341		CL	II	2764.694	2763.877	44		613	
V	II	2763.228	2762.479	50		782		TI	II	2764.71	2763.90	1	8.	488	
FE	II	2763.250	2762.436	70	199.	488		MN	I	2764.722	2763.907	8		148	
CU	II	2763.2978	2762.4817	1		612		FE	II	2764.727	2763.913	40	199.	488	
MN	II	2763.37	2762.55	60		328		ZN	II	2764.769	2763.955	30	7.	154	
FE	II	2763.380	2762.566	1	219.	488		CR	II	2764.78	2763.97	12	253.	341	
CR	II	2763.39	2762.58	140	6.	340		FE	II	2764.794	2763.979	20	407.	488	
CU	I	2763.39	2762.58	1		672		MN	II	2764.802	2763.987	30		328	
FE	I	2763.497	2762.681	12		896	M	MN	I	2764.841	2764.027	1		148	
MN	II	2763.51	2762.69	1		328		MN	II	2764.90	2764.08	10		328	
V	II	2763.529	2762.714	3	46.	478		CA	II	2764.912	2764.095	25		64	
NI	II	2763.542	2762.726	1		835		FE	I	2764.935	2764.118	20		896	
FE	I	2763.563	2762.7719	110	125.	896		BE	II	2765.0	2764.2			862	
CR	II	2763.59	2762.78	10	100.	340		CO	I	2765.003	2764.188	100	52.	603	
AL	III	2763.652	2762.767	285		826		V	IV	2765.036	2764.219	15		829	
MN	I	2763.668	2762.853	3		148		TI	II	2765.09	2764.28	1	33.	488	
AL	III	2763.729	2762.871	220		826		V	II	2765.10	2764.28	4		478	
TI	II	2763.73	2762.92	0	33.	488		CR	II	2765.10	2764.29	15	100.	340	
NE	II	2763.7380	2762.9218	80	10.	389		FE	I	2765.1396	2764.3230	30	128.	896	
CU	II	2763.84	2763.02	0		670		CR	I	2765.169	2764.355	35	15.	341	
CO	I	2763.876	2763.062	1		603		NE	III	2765.19	2764.38	20		1031	M
CR	I	2763.90	2763.09	15	101.	341		NI	II	2765.228	2764.412	8		835	
CU	I	2763.90	2763.09	1		672		FE	II	2765.280	2764.465	1	424.	488	
FE	I	2763.9256	2763.1093	110	47.	896		CA	I	2765.41	2764.60	4	9.	488	
MN	II	2763.989	2763.172	60		328		F	IV	2765.41	2764.60	1		173	
SI	VIII	2764.	2763.			843	H	AR	II	2765.4628	2764.6461	60	17.	867	
NI	III	2764.19	2763.37	1		661		NE	III	2765.51	2764.70	40		1031	M
CR	I	2764.21	2763.40	2		341		CC	II	2765.53	2764.72		M	825	
NI	II	2764.257	2763.440	5		835		CU	II	2765.546	2764.730	2		612	
AR	II	2764.336	2763.520	10		506		CU	I	2765.577	2764.762	5		672	
CR	II	2764.40	2763.59	20	101.	340		FE	II	2765.602	2764.787	40	198.	488	
MN	II	2764.469	2763.653	60		328		TI	II	2765.636	2764.821	10	12.	488	
FE	II	2764.472	2763.656	20	440.	896		CR	II	2765.78	2764.96	10	138.	340	
MN	I	2764.480	2763.665	3		148		MN	II	2765.783	2764.966	40		328	
MN	II	2764.576	2763.760	20		328		CR	I	2765.84	2765.03	1		341	
HE	I	2764.620	2763.804	20		497		C	II	2765.937	2765.120	4	37.	287	
CU	I	2764.624	2763.809	15	52.	672		CR	II	2765.94	2765.13	4	252.	340	
FE	II	2764.654	2763.839	1		645		FE	II	2765.945	2765.128	25		896	
V	IV	2764.676	2763.860	15		829		FE	V	2765.98	2765.17			229	F
MN	I	2764.69	2763.87	3		148		CR	I	2766.03	2765.21	5	78.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MG	I	2766.039	2765.222	10	8.	1017		CR	I	2768.03	2767.21	1		341	
FE	II	2766.040	2765.224	8		896		CR	II	2768.08	2767.26	10	266.	340	
CU	I	2766.116	2765.300	1		672		NE	I	2768.10	2767.28	3		723	
MN	II	2766.249	2765.434	100	46.	328		MN	I	2768.266	2767.450	10		148	
CR	II	2766.28	2765.46	20	100.	340		CO	II	2768.315	2767.498	0		825	
FE	II	2766.308	2765.493	5	324.	488		FE	II	2768.316	2767.500	750	235.	488	
CR	II	2766.44	2765.62	12	59.	340		FE	II	2768.316	2767.500	750	373.	488	H
TI	II	2766.46	2765.65	0	33.	488		FE	I	2768.3396	2767.5222	155	46.	896	
MN	II	2766.469	2765.652	60		328		CR	I	2768.35	2767.53	7	79.	341	
V	II	2766.491	2765.676	150	218.	478		CR	II	2768.46	2767.62	20	253.	340	
FE	I	2766.51	2765.70	1	92.	605		CO	II	2768.474	2767.657	50		825	
CR	II	2766.68	2765.86	20	260.	340		ZN	II	2768.48	2767.66	10		154	
FE	I	2766.808	2765.991	4		896	M	C	II	2768.45J	2767.673	25	37.	287	
FE	I	2766.85	2766.03	1	160.	605		NE	I	2768.59	2767.77	2		723	
NE	III	2766.89	2766.07	20		1031	M	MN	II	2768.624	2767.806	40		328	
V	I	2766.92	2766.10	1		1000		MN	II	2768.627	2767.810	30		328	
C	II	2766.935	2766.118	10	37.	287		BR	III	2768.68	2767.86	10		586	
CA	I	2766.95	2766.13	2	9.	488		FE	III	2768.73	2767.92	10		188	
FE	II	2767.015	2766.200	5	324.	488		CR	II	2768.74	2767.92	3		340	
CO	I	2767.030	2766.215	50	131.	603		MN	II	2768.75	2767.93	60		328	
CU	I	2767.186	2766.371	500	18.	672		AR	II	2768.762	2767.945	20		506	
NE	I	2767.189	2766.372	6		896		AS	II	2768.801	2767.983	40		425	
CO	I	2767.197	2766.382	50	52.	603		FE	I	2768.922	2768.105	20		896	M
CR	I	2767.21	2766.39	10	93.	341		V	II	2768.966	2768.150	15	64.	478	
MN	III	2767.227	2766.410	1		301		CR	II	2768.98	2768.16	10	100.	340	
V	II	2767.276	2766.460	60	77.	478		TI	II	2769.02	2768.20		M	31.	488
P	II	2767.29	2766.48	00		431		CO	I	2769.11C	2768.294	9		603	
CR	II	2767.37	2766.55	150	6.	340		V	I	2769.12	2768.30	3		78.	1000
FE	I	2767.377	2766.560	1	152.	378		FE	II	2769.150	2768.334	5	338.	468	
FE	I	2767.476	2766.659	12		896	M	MG	I	2769.156	2768.339	20	8.	1017	
CO	II	2767.513	2766.696	4	29.	825		FE	I	2769.249	2768.432	15	126.	896	
ZN	II	2767.54	2766.72	10		154		MN	II	2769.275	2768.456	170	83.	328	
BR	III	2767.55	2766.73	120		586		CR	I	2769.28	2768.46	2	78.	341	
MN	II	2767.584	2766.767	30		328		V	II	2769.382	2768.566	100	46.	478	
CO	II	2767.64	2766.82	4	29.	825		FE	I	2769.397	2768.580	10		896	M
FE	I	2767.7268	2766.9096	80	47.	896		CR	II	2769.41	2768.59	50	252.	340	
LI	II	2767.806	2766.989			307		MN	II	2769.43	2768.61	1		328	
NE	III	2767.84	2767.02	40		1031	M	NI	II	2769.452	2768.634	120	68.	835	
V	II	2767.92	2767.10	30	218.	478		CO	I	2769.502	2768.686	20		603	
SE	III	2768.02	2767.20	250		587		MN	II	2769.53	2768.71	1		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	II	2769.664	2768.848	1	324.	488		FE	II	2771.323	2770.505	4	199.	896	
MN	II	2769.677	2768.859	60	83.	328		NE	II	2771.3928	2770.5747	70	10.	389	
CU	I	2769.694	2768.878	112	49.	672		GE	II	2771.406	2770.588	50		676	
SC	I	2769.70	2768.88	0		1030	M	CL	IV	2771.46	2770.64	400		43	
MN	II	2769.72	2768.90	40	46.	328		FE	I	2771.5132	2770.6951	10	123.	896	
V	I	2769.75	2768.93	6	84.	1000		MN	III	2771.547	2770.729	1		301	
FE	II	2769.752	2768.934	12	63.	896	H	P	III	2771.609	2770.791	1		936	
AR	II	2769.86	2769.04	0		506		CA	I	2771.61	2770.79	6	9.	488	
CO	II	2769.891	2769.073	12		825		ZN	I	2771.682	2770.865	160	5.	830	
FE	II	2769.970	2769.153	8	200.	896	H	V	I	2771.76	2770.94	2		1000	
CL	III	2770.1	2769.3	300		43		ZN	I	2771.801	2770.984	50	5.	830	
CR	II	2770.11	2769.29	8	333.	340		V	II	2771.81	2770.99	4	63.	478	
FE	I	2770.1148	2769.2970	50	151.	896		MN	II	2771.853	2771.035	40		328	
MN	II	2770.135	2769.317	40		328		FE	II	2772.001	2771.184	110	282.	488	
FE	II	2770.173	2769.355	25	198.	896	H	CR	II	2772.09	2771.27	12	251.	340	
CU	III	2770.196	2769.378	10		724		CA	III	2772.095	2771.277	315		64	
MN	I	2770.227	2769.410	2		148		CO	I	2772.140	2771.324	1		603	
FE	II	2770.382	2769.566	5	199.	488		V	II	2772.23	2771.41	40	219.	478	
MN	II	2770.458	2769.640	100		328		FE	V	2772.24	2771.42			229	F
CO	I	2770.475	2769.659	10		603		MN	I	2772.246	2771.430	30	8.	148	
CU	II	2770.4871	2769.6692	800	150.	612		CR	I	2772.266	2771.449	10	62.	341	
FE	I	2770.4891	2769.6713	40	44.	896		NI	II	2772.291	2771.473	10		835	
CR	II	2770.52	2769.70	3	333.	340		MN	II	2772.316	2771.527	40		328	
V	II	2770.547	2769.731	20	134.	478		P	III	2772.364	2771.546	4		936	
AR	II	2770.5566	2769.7387	80		867		FE	II	2772.370	2771.553	40	197.	488	
O	V	2770.58	2769.76	25		83		NI	II	2772.385	2771.567	8		835	
FE	II	2770.652	2769.835	10		896		CO	I	2772.514	2771.697	9	126.	603	
MN	II	2770.679	2769.860	40	83.	328		CL	II	2772.59	2771.78	4		345	
CR	I	2770.719	2769.902	50	15.	341		P	V	2772.595	2771.778	30		524	
AR	II	2770.73	2769.91	5		506		FE	I	2772.698	2771.880	40		896	M
CR	II	2770.74	2769.92	10	333.	340		CR	II	2772.71	2771.89	20	333.	340	
N	II	2770.876	2770.060		21.0	521	P	MN	II	2772.71	2771.89	0		328	
CO	I	2770.92	2770.10	0		603		AR	II	2772.73	2771.91	5		506	
MN	I	2771.058	2770.242	3		148		V	II	2772.83	2772.01	60	218.	478	
FE	II	2771.119	2770.303	5	337.	488		NI	II	2772.837	2772.018	5		835	
CR	III	2771.12	2770.30	10		490		MN	I	2772.849	2772.032	2	13.	148	
FE	II	2771.248	2770.432	20		488	N	FE	I	2772.8921	2772.0736	170	45.	896	
AR	II	2771.256	2770.438	5		506		NI	II	2772.908	2772.090	5		835	
CR	I	2771.26	2770.44	3	79.	341		MN	II	2772.91	2772.09	20		328	
FE	II	2771.323	2770.505	4	198.	896		O	III	2772.92	2772.10	10		168	P

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2772.9284	2772.1099	8	5.	896		V	I	2774.83	2774.01	3	69.	1000	
MN	II	2772.945	2772.126	30		328		AR	II	2774.918	2774.099	20		506	
NI	II	2773.114	2772.296	3		835		CR	I	2774.95	2774.13	2	78.	341	
FE	I	2773.137	2772.318	20		896		FE	I	2774.9804	2774.1614	6	127.	896	
MN	II	2773.14	2772.32	2		328		MN	II	2775.02	2774.20	15		328	
CR	II	2773.15	2772.33	8	183.	340		V	II	2775.10	2774.28	100	46.	478	
FE	III	2773.161	2772.344	25		188		MN	I	2775.106	2774.289	1		148	
GE	II	2773.165	2772.346	75		676		MN	II	2775.247	2774.427	30		328	
CR	I	2773.19	2772.37	2		341		CR	II	2775.26	2774.44	50	266.	340	
SE	III	2773.28	2772.46	120		587		CU	I	2775.3	2774.5	4		672	
FE	I	2773.327	2772.508	25		896		FE	II	2775.505	2774.686	20	218.	896	H
CO	I	2773.358	2772.541	15		603		V	II	2775.536	2774.718	60	133.	478	
MN	II	2773.45	2772.61	8		328		FE	I	2775.5488	2774.7297	20	46.	896	
CO	I	2773.509	2772.692	30	139.	603		MN	III	2775.63	2774.81	1		301	
FE	II	2773.536	2772.719	5	63.	488		N	II	2775.633	2774.815		21.0	521	P
AR	II	2773.559	2772.740	20		506		CR	I	2775.66	2774.84	1		341	
N	II	2773.617	2772.798		21.0	521	P	MN	II	2775.67	2774.85	10		328	
CA	I	2773.62	2772.80	2	9.	488		FE	I	2775.757	2774.938	10		896	M
FE	I	2773.644	2772.826	8	179.	896		NI	II	2775.757	2774.938	8		835	
CR	I	2773.82	2773.00	5		341		P	III	2775.778	2774.959	4		936	
MN	I	2773.838	2773.021	5	14.	148		CO	I	2775.778	2774.960	50	52.	603	
SC	IV	2773.853	2773.036	285		720		CO	II	2775.787	2774.968	4	30.	825	
MN	II	2773.862	2773.043	80	46.	328		V	II	2775.793	2774.976	30	63.	478	
FE	I	2774.050	2773.232	50		896		MN	II	2775.798	2774.978	60		328	
CR	II	2774.12	2773.30	30	58.	340		V	V	2775.816	2774.998	150		929	
FE	III	2774.123	2773.306	150	158.	188		NE	I	2775.869	2775.051	149		796	
P	II	2774.14	2773.32	00		431		NI	II	2775.980	2775.160	120	68.	835	
MN	II	2774.20	2773.38	15		328		S	III	2776.07	2775.25	250	16.	323	
NI	II	2774.254	2773.435	8		835		MN	II	2776.138	2775.319	20		328	
MN	I	2774.476	2773.659	10	14.	148		FE	II	2776.157	2775.339	5	32.	488	
FE	II	2774.478	2773.659	8	338.	896		MN	II	2776.202	2775.383	30		328	
V	I	2774.48	2773.66	8	84.	1000		MN	II	2776.33	2775.51	10		328	
CR	I	2774.49	2773.67	1		341		CO	I	2776.396	2775.578	50	138.	603	
CO	I	2774.50	2773.68	3		603		MN	II	2776.471	2775.652	140	73.	328	
NI	III	2774.51	2773.68	2		661		CR	I	2776.485	2775.668	12	93.	341	
CU	I	2774.52	2773.70	1		672		V	II	2776.588	2775.700	70	148.	478	
TI	III	2774.54	2773.72	25		227		MN	II	2776.65	2775.83	10		328	
SE	III	2774.63	2773.81	200		587		FE	I	2776.663	2775.844	10		896	M
NI	II	2774.675	2773.856	15		835		CR	I	2776.71	2775.89	2		341	
FE	I	2774.7216	2773.9027	6	151.	896		V	I	2776.730	2775.911	2		1000	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	II	2776.79	2775.97	1		825		V	II	2778.567	2777.748	80	77.	478	
GR	II	2776.82	2776.00	3	333.	340		MN	II	2778.597	2777.776	80		328	
MN	II	2776.949	2776.131	5		328		FE	II	2778.659	2777.840	5	281.	488	
FE	II	2776.998	2776.180	70	199.	488		FE	II	2778.709	2777.889	5	233.	896	
CO	II	2777.029	2776.209	15		825		K	II	2778.71	2777.89	20	4.	488	
P	IV	2777.030	2776.210	60		937		F	IV	2778.85	2778.03	4		173	
MN	I	2777.036	2776.218	80	9.	148		V	I	2778.876	2778.058	4	69.	1000	
V	II	2777.06	2776.24	6	144.	478		CR	II	2778.88	2778.06	70	266.	340	
AR	IV	2777.08	2776.26	100	4.	488		FE	I	2778.887	2778.067	60		896	
CO	II	2777.16	2776.34	5		825		V	II	2778.98	2778.16	2		478	
NI	II	2777.168	2776.349	1		835		MG	I	2779.01	2778.13	I	7.	1017	
FE	I	2777.217	2776.397	15		896	M	CR	I	2779.031	2778.213	12	93.	341	
FE	I	2777.267	2776.448	3		896	M	MN	II	2779.04	2778.22	5		328	
V	I	2777.29	2776.47	6		1000		FE	I	2779.0405	2778.2205	240	44.	896	
V	II	2777.322	2776.502	1		782		MN	III	2779.05	2778.23	1		301	
MN	II	2777.343	2776.523	100	46.	328		AR	II	2779.06	2778.24	0		506	
CR	I	2777.421	2776.603	2		341		CR	II	2779.09	2778.27	4	118.	340	
MG	I	2777.47	2776.59	I		1017		MG	I	2779.090	2778.270	130	6.	1017	
CR	II	2777.47	2776.65	20	252.	340		AS	II	2779.269	2778.448	0		425	
V	I	2777.49	2776.67	2		1000		TI	II	2779.30	2778.48	2	28.	488	
MG	I	2777.509	2776.690	130	6.	1017		CR	II	2779.33	2778.51	5	138.	340	
FE	I	2777.586	2776.767	1		378		NI	III	2779.34	2778.52	0		661	
NI	II	2777.626	2776.806	40		835		MN	I	2779.363	2778.544	60	9.	148	
CU	III	2777.637	2776.817	10		724		V	II	2779.42	2778.60	80		478	
F	III	2777.720	2776.900	30		537		F	III	2779.428	2778.608	30		537	
FE	II	2777.727	2776.907	15	373.	896		MN	II	2779.63	2778.81	5		328	
N	II	2777.807	2776.989		17.0	521	P	CO	I	2779.632	2778.813	75	128.	603	
NI	III	2777.932	2777.118	5		661		S	III	2779.64	2778.82	50		323	
V	I	2777.976	2777.157	5		1000		FE	I	2779.662	2778.841	40		896	
MN	II	2777.98	2777.16	20		328		FE	III	2779.686	2778.869	60	120.	188	
CL	X	2778.0	2777.2			111		CR	II	2779.76	2778.94	10	276.	340	
MN	II	2778.204	2777.384	30		328		ZN	II	2779.8	2779.0	10		154	
MN	I	2778.282	2777.464	6		148		MN	II	2779.816	2778.996	100	72.	328	
CU	III	2778.330	2777.510	0		724		CR	I	2779.952	2779.134	12	93.	341	
SE	III	2778.34	2777.52	250		587		NI	II	2780.108	2779.288	8		835	
FE	I	2778.450	2777.631	15		896		FE	II	2780.119	2779.299	40	234.	896	H
NE	III	2778.47	2777.65	140		1031	M	CO	II	2780.148	2779.328	0		825	
CR	I	2778.482	2777.664	10	56.	341		CR	I	2780.15	2779.33	1	78.	341	
V	I	2778.52	2777.70	8		1000		NI	II	2780.180	2779.360	3		835	
C	III	2778.534	2777.714	110	35.	34		MN	III	2780.190	2779.370	2		301	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	III	2780.303	2779.483	110		288		MG	I	2782.109	2781.288	25	7.	1017	
NI	II	2780.411	2779.591	5		835		CO	II	2782.21	2781.39	3		825	
CO	II	2780.475	2779.655	8	30.	825		F	III	2782.211	2781.390	375		537	
MN	II	2780.57	2779.75	8		328		MN	II	2782.216	2781.397	50		328	
P	III	2780.607	2779.787	10		936		MG	I	2782.236	2781.416	130	6.	1017	
CO	II	2780.632	2779.812	2		825		NE	I	2782.24	2781.42	2		1029	Q
MG	I	2780.651	2779.831	160	6.	1017		CU	III	2782.245	2781.424	5		724	
FE	II	2780.728	2779.907	5	348.	896		V	II	2782.30	2781.48	100	219.	478	
MN	I	2780.812	2779.993	40	13.	148		CR	II	2782.37	2781.55	4	333.	340	
NE	II	2780.848	2780.027	50	10.	563		MN	II	2782.37	2781.55	1		328	
FE	II	2780.854	2780.035	40	348.	488		NE	I	2782.45	2781.63	3		723	
V	II	2780.91	2780.09	5	63.	478		MN	I	2782.552	2781.733	1		148	
V	V	2780.959	2780.140	30		929		MN	II	2782.620	2781.798	30	72.	328	
GA	II	2780.97	2780.15	650	8.	652		FE	I	2782.6563	2781.8355	20	46.	896	
V	II	2780.975	2780.195	15		782		CO	II	2782.70	2781.88	7		825	
FE	II	2780.997	2780.178	0	259.	488		MN	II	2782.753	2781.932	30	104.	328	
MN	II	2781.03	2780.21	20		328		F	III	2782.814	2781.993	300		537	
AS	I	2781.04	2780.22	200	16.	480		FE	I	2782.874	2782.053	6	126.	896	
CR	II	2781.12	2780.30	85	183.	340		NE	I	2782.89	2782.07	2		723	
CO	II	2781.19	2780.37	5		825		CO	II	2782.91	2782.09	3		825	
FE	V	2781.22	2780.40			229	F	P	V	2782.916	2782.095	80		524	
NI	II	2781.302	2780.482	30		835		CO	I	2782.93	2782.11	0		603	
FE	I	2781.346	2780.526	1	92.	378		CR	II	2782.95	2782.13	4	276.	340	
P	III	2781.367	2780.547	60		936		MN	II	2782.966	2782.145	100	72.	328	
TI	II	2781.37	2780.55	5	8.	488		CO	I	2783.077	2782.258	3		603	
NI	II	2781.372	2780.551	10		835		MN	I	2783.078	2782.259	1		148	
CR	I	2781.514	2780.695	60	15.	341		NI	II	2783.079	2782.258	5		835	
FE	I	2781.5181	2780.6975	15	160.	896		TI	II	2783.12	2782.30	2	28.	488	
CU	I	2781.643	2780.828	1		672		SC	II	2783.16	2782.34	3	4.	488	
P	III	2781.658	2780.838	40		936		CR	II	2783.18	2782.36	40	183.	340	
FE	I	2781.7032	2780.8826	12	45.	896		CR	II	2783.26	2782.44	3	99.	340	
CR	II	2781.71	2780.89	25	58.	340		CL	IV	2783.29	2782.47	700		43	
NI	II	2781.726	2780.905	10		835		V	II	2783.38	2782.56	5		478	
N	II	2781.760	2780.940		17.0	521	P	CR	II	2783.41	2782.59	28	257.	340	
O	V	2781.83	2781.01	1000		83		CU	I	2783.411	2782.592	20	52.	672	
CO	I	2781.852	2781.032	8		603		AS	II	2783.482	2782.611	20		425	
CR	II	2781.89	2781.07	25	260.	340		MN	I	2783.530	2782.711	50	7.	148	
CR	I	2781.97	2781.15	10	93.	341		CR	I	2783.55	2782.73	1		341	
F	IV	2782.00	2781.18	10		173		ZN	II	2783.63	2782.81	30	7.	154	
O	IV	2782.04	2781.21			86		NI	II	2783.768	2782.947	1		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2783.77	2782.95	6	191.	478		MN	II	2786.052	2785.230	100	83.	328	
MG	I	2783.793	2782.972	130	6.	1017		FE	I	2786.097	2785.275	8		896	M
CR	I	2783.807	2782.988	3		341		NE	III	2786.11	2785.29	100		1031	
NE	III	2783.85	2783.03	40		1031		CR	II	2786.14	2785.32	2	266.	340	
O	II	2783.88	2783.06	10		168	P	MN	I	2786.154	2785.334	1		148	
MN	I	2783.899	2783.080	10		148		CO	II	2786.25	2785.43	7		825	
MG	V	2783.9	2783.1			108	F	S	III	2786.31	2785.49	300	20.	323	
F	III	2784.130	2783.309	50		537		GE	II	2786.322	2785.500	2		676	
FE	II	2784.230	2783.410	5	337.	488		V	I	2786.34	2785.52	8		1000	
CR	I	2784.27	2783.45	5		341		V	I	2786.48	2785.66	10	92.	1000	
CU	I	2784.371	2783.551	20	51.	672		CO	II	2786.51	2785.69		M	825	
FE	I	2784.3722	2783.5509	3	95.	896		CR	II	2786.51	2785.69	65	183.	340	
MN	III	2784.367	2783.566	30		328		FE	II	2786.621	2785.800	0	295.	488	
MG	III	2784.4	2783.5			2		V	II	2786.65	2785.83	5	223.	478	
F	II	2784.45	2783.63	10		538		NI	II	2786.683	2785.861	2		835	
AR	III	2784.47	2783.65	50		79		CO	I	2786.719	2785.899	50	137.	603	
CO	II	2784.50	2783.68	0		825		F	IV	2786.78	2785.96	25		173	
FE	II	2784.512	2783.691	50	234.	896	H	AR	V	2786.81	2785.99			108	F
V	I	2784.58	2783.76	7	92.	1000		TI	II	2786.81	2785.99	6	28.	488	
CR	II	2784.66	2783.84	20	252.	340		TI	III	2786.83	2786.01	1		227	
V	II	2784.76	2783.94	30		478		NE	III	2786.99	2786.17	40		1031	
FE	II	2784.779	2783.959	20	295.	488		FE	I	2787.00	2786.18	1	123.	605	
FE	I	2784.8300	2784.0087	5	160.	896		MN	I	2787.005	2786.185	3	14.	148	
MN	II	2785.030	2784.208	140	83.	328		MN	I	2787.086	2786.266	3		148	
V	II	2785.07	2784.25	60		478		CR	II	2787.12	2786.30	2	183.	340	
FE	II	2785.102	2784.282	20	295.	488		F	III	2787.248	2786.426	50		537	
CR	II	2785.12	2784.30	4		340		MN	II	2787.278	2786.455	50		328	
FE	I	2785.164	2784.343	8	152.	896		CR	II	2787.28	2786.46	10	252.	340	
MN	II	2785.27	2784.45	10		328		CU	I	2787.317	2786.496	10	50.	672	
AR	IV	2785.29	2784.47	120	6.	488		CR	I	2787.417	2786.597	4		341	
FE	II	2785.305	2784.484	5	373.	488		MN	II	2787.58	2786.76	2		328	
CR	I	2785.45	2784.63	4	93.	341		MN	II	2787.60	2786.78	2		328	
TI	II	2785.469	2784.648	3	8.	488		FE	I	2787.603	2786.781	6		896	
FE	V	2785.82	2785.00			229	F	CR	I	2787.634	2786.814	1		341	
MN	II	2785.865	2785.043	100	65.	328		NE	III	2787.71	2786.89	60		1031	
CR	II	2785.92	2785.10	10	99.	340		MN	II	2787.73	2786.91	2		328	
FE	I	2785.949	2785.127	3		896	M	FE	I	2787.767	2786.944	5		896	M
FE	II	2786.015	2785.193	30	373.	896		O	V	2787.81	2786.99	920		83	
V	I	2786.037	2785.216	3		1000		V	II	2787.82	2787.00	10	219.	478	
AR	III	2786.05	2785.23	50		79		CO	I	2787.836	2787.016	5		603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2787.89	2787.07	10		328		CR	II	2789.90	2789.08	8	99.	340	
FE	I	2787.94	2787.12	1	151.	605		MN	I	2790.013	2789.192	25	8.	148	
CR	II	2787.95	2787.13	2	307.	340		SC	II	2790.02	2789.20	5	4.	488	
O	IV	2788.05	2787.23	F		86		CU	II	2790.045	2789.223	1		612	
FE	II	2788.064	2787.241	5	380.	896		MN	II	2790.127	2789.304	30	104.	328	
MN	I	2788.084	2787.264	2	13.	148		MN	I	2790.176	2789.355	15	9.	148	
CR	II	2788.12	2787.30	5	196.	340		F	III	2790.186	2789.363	250		537	
V	II	2788.14	2787.32	2		478		CR	II	2790.21	2789.39	40	327.	340	
F	III	2788.285	2787.463	110		537		MN	II	2790.21	2789.39	15		328	
CR	II	2788.43	2787.61	55	58.	340		FE	I	2790.300	2789.477	15	125.	896	
MN	II	2788.43	2787.61	15		328		CR	I	2790.34	2789.52	2		341	
SE	III	2788.53	2787.71	10		14		CO	II	2790.36	2789.54	7		825	
F	III	2788.538	2787.716	150		537		FE	II	2790.5CJ	2789.678	5		896	
NE	III	2788.55	2787.73	80		1031		FE	III	2790.519	2789.698	60		188	
CO	II	2788.60	2787.78	3		825		MN	I	2790.552	2789.731	3		148	
MN	I	2788.633	2787.813	15	9.	148		FE	I	2790.6247	2789.8019	20	170.	896	
CR	I	2788.664	2787.843	15		341		O	V	2790.67	2789.85	775		83	
CU	III	2788.687	2787.865	2		724		FE	I	2790.670	2789.847	6		896	
CR	II	2788.72	2787.90	25	259.	340		P	III	2790.724	2789.901	25		936	
FE	I	2788.7540	2787.9317	20	93.	896		MN	II	2790.805	2789.982	100	72.	328	
V	II	2788.77	2787.95	20		478		MN	II	2790.88	2790.06	5	104.	328	
TI	II	2788.82	2788.00	8	28.	488		FE	II	2790.887	2790.065	5	436.	488	
CR	I	2788.91	2788.09	3		341		CR	I	2790.913	2790.092	8	92.	341	
FE	I	2788.926	2788.104	550	44.	896		FE	II	2790.999	2790.177	1	411.	488	
CO	II	2788.93	2788.10	4		825		AS	II	2791.0298	2790.2070	50		425	
F	III	2788.967	2788.145	450		537		CR	I	2791.10	2790.28	12	61.	341	
V	I	2788.98	2788.16	2		1000		CO	I	2791.105	2790.284	30		603	
FE	III	2789.079	2788.258	90	120.	188		LI	II	2791.136	2790.313	I		307	
CU	II	2789.0840	2788.2616	45		612		MN	I	2791.175	2790.353	30	8.	148	
FE	V	2789.18	2788.36			229	F	FE	V	2791.19	2790.37			229	F
MN	II	2789.20	2788.38	3		328		FE	II	2791.379	2790.557	40	282.	488	
GE	IV	2789.35	2788.61	30		406		NI	II	2791.380	2790.557	15		835	
F	IV	2789.38	2788.56	4		173		AS	II	2791.4222	2790.5992	150		425	
CL	II	2789.45	2788.63	6		345		TI	II	2791.44	2790.62	3	28.	488	
V	II	2789.48	2788.66	3		478		CR	II	2791.46	2790.64	1	327.	340	
MN	I	2789.503	2788.682	3		148		FE	II	2791.574	2790.752	1	32.	488	H
CR	II	2789.56	2788.74	5	119.	340		FE	I	2791.585	2790.762	0		378	
ZN	III	2789.64	2788.82	10		162		CO	II	2791.592	2790.769	150		825	
AR	IV	2789.78	2788.96	140	4.	488		MG	II	2791.593	2790.771	150	3.	831	
MN	II	2789.85	2789.03	2		328		MN	II	2791.693	2790.868	10		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	I	2791.747	2790.925	4		148		SE	III	2793.95	2793.13	50		587	
CR	II	2791.76	2790.94	5	327.	340		MN	II	2794.041	2793.218	20		328	
FE	II	2791.823	2791.001	20	232.	488		F	III	2794.045	2793.221	200		537	
CO	I	2791.830	2791.009	50	128.	603		MN	I	2794.06	2793.24	6	14.	148	
MN	I	2791.906	2791.085	20	6.	148		FE	II	2794.062	2793.239	20	337.	488	
MN	II	2792.005	2791.180	30		328		NI	II	2794.168	2793.344	40		835	
CR	II	2792.19	2791.37	3	307.	340		FE	I	2794.192	2793.368	3		896	M
CO	I	2792.252	2791.430	2		603		CU	I	2794.307	2793.485	2		672	
CO	II	2792.263	2791.440	5		825		CR	II	2794.33	2793.51	3	307.	340	
CR	II	2792.27	2791.45	5	118.	340		NI	II	2794.421	2793.597	20		835	
FE	I	2792.278	2791.454	12		896	M	CU	II	2794.4318	2793.6081	3		612	
V	II	2792.32	2791.50	7	36.	478		F	III	2794.434	2793.610	50		537	
MN	I	2792.405	2791.584	4	13.	148		CR	II	2794.45	2793.63	10	59.	340	
CA	II	2792.413	2791.590	360	8.	64		CO	II	2794.529	2793.705	5	30.	825	
V	II	2792.45	2791.63	10		478		MN	II	2794.533	2793.709	30		328	
CR	II	2792.52	2791.70	7	258.	340		CR	I	2794.60	2793.78	3	91.	341	
MN	I	2792.529	2791.707	2	9.	148		FE	I	2794.611	2793.787	5		896	M
FE	I	2792.6088	2791.7856	20	151.	896		CR	I	2794.69	2793.87	2		341	
CU	II	2792.6180	2791.7947	200		612		FE	II	2794.712	2793.888	20	198.	896	H
CR	I	2792.65	2791.83	4		341		GE	I	2794.7487	2793.9249	30	22.	7	
CU	I	2792.770	2791.951	5		672		FE	I	2794.752	2793.928	30		896	M
CU	III	2792.789	2791.966	0		724		BR	III	2794.77	2793.95	1		586	
NE	II	2792.8405	2792.0172	90	10.	389		CO	II	2794.94	2794.12	4		825	
FE	II	2792.873	2792.050	5	233.	488		FE	I	2794.979	2794.157	1	124.	605	
MN	II	2792.91	2792.09	4		328		O	III	2795.012	2794.189	10		1032	
NI	II	2792.957	2792.133	50		835		NE	II	2795.0434	2794.2195	80	10.	389	
CR	II	2792.98	2792.16	80	183.	340		F	IV	2795.08	2794.26	25		173	
CU	II	2793.0476	2792.2242	2		612		V	II	2795.11	2794.29	5	223.	478	
FE	III	2793.11	2792.29	10		188		CR	II	2795.21	2794.39	5	307.	340	
NE	I	2793.142	2792.319	30		896		MN	III	2795.340	2794.516	2		301	
SE	III	2793.16	2792.34	50		587		C	III	2795.390	2794.560	20	36.	34	
FE	I	2793.2221	2792.3987	25	95.	896		NE	I	2795.419	2794.595	30		796	
CO	I	2793.258	2792.436	40	107.	603		NI	II	2795.445	2794.621	100		835	
CO	II	2793.260	2792.437	30		825		SC	II	2795.52	2794.70	1		1028	
V	II	2793.27	2792.45	6	217.	478		FE	I	2795.5262	2794.7022	20	46.	896	
CR	II	2793.31	2792.49	4	251.	340		MN	I	2795.640	2794.817	1000	1.	148	
NE	I	2793.483	2792.660	3		723		FE	V	2795.65	2794.83			229	F
CR	II	2793.61	2792.79	4	196.	340		V	II	2795.65	2794.83	15		478	
NI	II	2793.696	2792.872	50		835		CR	I	2795.767	2794.945	7		341	
O	IV	2793.72	2792.90	10		86		FE	I	2795.8294	2795.0054	12	3.	896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NE	I	2795.916	2795.092	30		796		CR	I	2797.787	2796.965	1		341	
NI	II	2795.963	2795.139	3		835		MN	I	2797.817	2797.094	3	13.	148	
MN	II	2795.988	2795.163	100	66	328		V	II	2797.840	2797.017	60	100.	478	
CO	II	2796.06	2795.24	1		825		FE	II	2797.861	2797.037	1	32.	488	
CR	I	2796.085	2795.263	5	92	341		FE	I	2797.870	2797.046	0		378	
AR	II	2796.113	2795.289	20		506		CO	I	2797.904	2797.081	50	108.	603	
CU	II	2796.1222	2795.2981	45		612		FE	II	2798.019	2797.195	10	436.	896	
CR	II	2796.14	2795.32	2	197.	340		CA	III	2798.028	2797.203	60		64	
V	II	2796.21	2795.39	3	217.	478		CU	II	2798.0797	2797.2551	40		612	
AR	II	2796.249	2795.425	20		506		S	III	2798.21	2797.39	200	20.	323	
MN	II	2796.34	2795.52	5		328		MN	II	2798.249	2797.424	30		328	
MG	II	2796.347	2795.523	400	1.	831		CU	II	2798.2584	2797.4337	50		612	
CO	II	2796.35	2795.53	5		825		CU	II	2798.3741	2797.5495	2		612	
FE	I	2796.3643	2795.5401	30	94.	896		MN	II	2798.40	2797.58	40	104.	328	
V	II	2796.365	2795.541	3		782		C	II	2798.53	2797.70	4	49.	287	
CO	II	2796.41	2795.59	7		825		FE	I	2798.5999	2797.7752	140	45.	896	
NE	I	2796.437	2795.613	1		723		V	II	2798.618	2797.795	70	100.	478	
CU	II	2796.4815	2795.6573	30		612		FE	II	2798.739	2797.914	110	234.	488	H
V	II	2796.54	2795.72	4	223.	478		CO	II	2798.751	2797.925	300		825	
FE	II	2796.584	2795.760	5	281.	488		MG	II	2798.809	2797.984	350	3.	831	
CR	I	2796.640	2795.818	12	61.	341		NI	I	2798.821	2797.996	10	73.	488	
CO	I	2796.642	2795.819	15		603		O	III	2798.85	2798.03	4		168	P
MN	II	2796.647	2795.822	5		328		MN	I	2799.093	2798.270	880	1.	148	
FE	I	2796.681	2795.857	15		896	M	CO	II	2799.15	2798.33	20		825	
CU	II	2796.6974	2795.8731	3		612		P	IV	2799.155	2798.330	25		937	
NE	I	2796.787	2795.963	8		723		CR	II	2799.31	2798.48	4	307.	340	
CU	I	2796.867	2796.045	1		672		V	I	2799.351	2798.526	2		1000	
MN	II	2796.941	2796.117	80	73.	328		CR	II	2799.45	2798.65	35		340	
CO	I	2797.051	2796.228	50	52.	603		NI	I	2799.476	2798.651	50	26.	488	
CU	II	2797.0870	2796.2626	4		612		P	IV	2799.529	2798.704	10		937	
CA	III	2797.170	2796.346	100		64		TI	III	2799.54	2798.72	40		227	
CL	III	2797.19	2796.37	100		38		V	II	2799.578	2798.755	80	100.	478	
C	III	2797.280	2796.460	40	36.	34		CR	II	2799.59	2798.77	30	117.	340	
FE	II	2797.452	2796.627	10	373.	896		CU	II	2799.655	2798.830	1		612	
F	IV	2797.62	2796.80	10		173		TI	III	2799.735	2798.910	100		227	
CO	II	2797.644	2796.820	6		825		CO	II	2799.76	2798.93	7		825	
FE	III	2797.690	2796.866	20		288		CU	III	2799.771	2798.946	3		724	
FE	I	2797.6951	2796.8706	2	96.	896		O	III	2799.860	2799.035	4		1032	
MN	I	2797.760	2796.938	5	9.	148		BR	II	2799.862	2799.038	250		606	
NI	III	2797.774	2796.953	3		661		C	II	2799.97	2799.15	4	49.	287	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2799.971	2799.146	30		896		ZN	II	2801.57	2800.74	20		154	
NA	II	2800.02	2799.20	1		693		CR	II	2801.59	2800.77	85	182.	340	
CR	I	2800.03	2799.21	1		341		NI	II	2801.632	2800.807	40		835	
N	II	2800.041	2799.216	110	21.	200		ZN	I	2801.693	2800.869	160	5.	830	
V	I	2800.053	2799.229	3		1000		AR	II	2801.744	2800.919	10		506	
NI	II	2800.076	2799.251	3		835		V	II	2801.77	2800.95	20	224.	478	
MN	II	2800.09	2799.26	5	104.	328		NI	II	2801.776	2800.950	1		835	
FE	II	2800.119	2799.294	30	233.	896	H	CU	II	2801.8757	2801.0502	5		612	
CO	I	2800.19	2799.37	0		603		ZN	I	2801.879	2801.056	30	5.	314	
CA	III	2800.211	2799.386	80		64		MN	I	2801.908	2801.084	770	1.	148	
NI	II	2800.215	2799.390	20		835		CO	II	2801.91	2801.08	20		825	
V	II	2800.274	2799.451	100	62.	478		CR	I	2801.95	2801.13	15	90.	341	
C	III	2800.290	2799.470	70	36.	34		ZN	I	2801.951	2801.167	4	5.	314	
CU	II	2800.3534	2799.5282	175		612		NI	II	2802.025	2801.199	15		835	
NI	II	2800.384	2799.559	5		835		C	II	2802.030	2801.210	60	48.	287	
CL	II	2800.42	2799.60	8		345		CU	II	2802.144	2801.318	2		612	
CU	II	2800.5058	2799.6806	75		612		SC	II	2802.18	2801.35	6	4.	488	
CO	II	2800.52	2799.69	5		825		CR	I	2802.209	2801.385	1		341	
FE	II	2800.537	2799.712	20	198.	488		C	II	2802.250	2801.430	25	48.	287	
CR	I	2800.567	2799.743	3	55.	341		CR	I	2802.377	2801.553	3	77.	341	
NE	I	2800.63	2799.80	2		723		NI	II	2802.537	2801.711	1		835	
MN	I	2800.665	2799.841	50	6.	148		NI	II	2802.601	2801.775	15		835	
V	II	2800.87	2800.05	4	220.	478		ZN	II	2802.791	2801.965	100		154	
BR	II	2800.885	2800.060	10		606		CO	II	2802.792	2801.966	1		825	
MN	II	2800.89	2800.06	3		328		CR	I	2802.82	2802.00	6		341	
CR	II	2800.98	2800.16	20	303.	340		MN	II	2802.829	2802.003	20	51.	328	
MN	II	2800.99	2800.17	4		328		CO	II	2802.88	2802.05	5		825	
NI	II	2801.055	2800.230	15		835		MN	I	2802.992	2802.168	10	21.	148	
NE	III	2801.07	2800.24	60		1031		SE	III	2803.07	2802.24	250		587	
CL	II	2801.10	2800.27	8		345		CO	II	2803.086	2802.260	1		825	
CO	II	2801.24	2800.41	3		825		NI	I	2803.096	2802.270	15		488	N
CO	I	2801.24	2800.42	00		603		FE	I	2803.111	2802.285	0		378	
MN	II	2801.25	2800.42	8		328		NE	III	2803.17	2802.34	40		1031	
BR	III	2801.26	2800.43	30		586		C	II	2803.22	2802.39	1	48.	287	Q
FE	I	2801.292	2800.467	10		896	M	CR	I	2803.22	2802.40	2		341	
FE	II	2801.362	2800.537	6	436.	896		MN	I	2803.223	2802.399	5	22.	148	
AS	II	2801.367	2800.542	10		425		MN	I	2803.279	2802.454	10	8.	148	
MN	I	2801.45	2800.63	6	7.	148		TI	I	2803.291	2802.465	150	24.	488	
TI	II	2801.48	2800.65	30	28.	488		NI	II	2803.336	2802.510	10		835	
NI	II	2801.526	2800.701	40		835		CU	I	2803.380	2802.556	10	47.	672	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	I	2803.443	2802.619	3	21.	148		BR	III	2804.94	2804.12	50		586	
BR	III	2803.45	2802.62	50		586		CU	II	2805.015	2804.189	1		612	
CR	I	2803.47	2802.65	8	77.	341		MN	I	2805.051	2804.216	2		148	
MN	I	2803.521	2802.697	2	21.	148		MN	I	2805.188	2804.363	15	21.	148	
MG	II	2803.523	2802.697	300	1.	831		SE	III	2805.21	2804.39	50		587	
CO	II	2803.531	2802.705	8		825		V	II	2805.267	2804.443	4	143.	478	
FE	III	2803.599	2802.773	110		288		FE	I	2805.3469	2804.5206	200	44.	896	
V	II	2803.620	2802.796	100	62.	478		NI	III	2805.47	2804.65	2		661	
NI	III	2803.626	2802.798	5		661		MN	II	2805.54	2804.71	4		328	
MN	I	2803.629	2802.805	15	21.	148		ZN	II	2805.55	2804.73	10		154	
TI	III	2803.77	2802.94	1		227		NI	II	2805.594	2804.768	3		835	
C	II	2803.78	2802.95	5	48.	287		B	III	2805.610	2804.780	1		531	
NI	I	2803.963	2803.140	5	69.	488		FE	I	2805.6886	2804.8622	10	170.	896	
TI	III	2803.98	2803.15	1		227		MN	I	2805.753	2804.929	6	13.	148	
FE	I	2803.9924	2803.1663	6	3.	896		TI	II	2805.82	2805.00	40	25.	488	
O	II	2804.03	2803.20	4		168	P	FE	II	2805.826	2804.999	5		896	
CR	II	2804.04	2803.22	8	67.	340		NI	I	2805.902	2805.078	15	1.	488	
MN	II	2804.064	2803.238	20		328		CR	III	2805.91	2805.10	5		490	
CU	II	2804.097	2803.271	2		612		FE	I	2805.930	2805.104	5		896	M
CR	II	2804.17	2803.35	20	116.	340		C	III	2805.960	2805.130	1	31.	34	
MN	II	2804.178	2803.352	10		328		CL	III	2805.99	2805.17	200		38	
CO	II	2804.18	2803.36	5		825		CR	I	2806.01	2805.19	2		341	
FE	II	2804.256	2803.430	8	438.	896		V	II	2806.015	2805.188	0		782	
MN	II	2804.269	2803.443	30	51.	328		MN	II	2806.034	2805.204	50	51.	328	
C	II	2804.28	2803.45	1	48.	287		FE	II	2806.139	2805.315	40	295.	488	
V	II	2804.293	2803.469	150	62.	478		MN	II	2806.191	2805.364	100	66.	328	
FE	III	2804.341	2803.441	90	120.	188		CR	III	2806.25	2805.42	1		490	
D	IV	2804.42	2803.59	25		86		CR	I	2806.281	2805.456	1		341	
FE	I	2804.4390	2803.6129	10	151.	896		V	II	2806.368	2805.544	30	120.	478	
MN	I	2804.447	2803.623	10	8.	148		NI	II	2806.494	2805.668	60	54.	835	
CU	I	2804.510	2803.686	10	48.	672		GE	II	2806.50	2805.66	20	15.	676	
CO	I	2804.594	2803.770	100	52.	603		TI	I	2806.504	2805.680	60	29.	488	
NI	II	2804.742	2803.916	3		835		CU	I	2806.54	2805.71	5		672	
FE	II	2804.762	2803.936	5		896		FE	II	2806.610	2805.786	70	259.	488	
MN	I	2804.771	2803.946	2	22.	148		FE	I	2806.6346	2805.8079	6	92.	896	
CR	II	2804.78	2803.96	10	307.	340		O	IV	2806.67	2805.84	150		86	
FE	II	2804.845	2804.021	40	259.	488		AR	II	2806.817	2805.990	10	17.	506	
F	III	2804.860	2804.034	80		537		F	IV	2806.82	2806.00	4		173	
MN	I	2804.920	2804.095	20	8.	148		FE	II	2806.831	2806.007	20	438.	488	
CO	I	2804.922	2804.098	5		603		MN	II	2806.87	2806.04	5		328	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2806.897	2806.070	5	139.	896		V	II	2808.848	2808.023	4	62.	478	
MN	I	2806.961	2806.136	30	21.	148		CR	II	2808.85	2808.02	20		340	
AR	III	2806.9940	2806.1672	80	17.	867		C	III	2808.900	2808.070	5	31.	34	
NI	II	2807.062	2806.236	8		835		V	II	2809.063	2808.237	25	120.	478	
C	III	2807.140	2806.310	5	31.	34		FE	I	2809.1542	2808.3269	40	45.	896	
CR	II	2807.16	2806.34	3		340		NI	II	2809.170	2808.343	20	26.	835	
CR	III	2807.22	2806.40	10		490		MN	I	2809.211	2808.385	8	13.	148	
TI	II	2807.231	2806.407	5	17.	488		FE	II	2809.225	2808.398	5		896	
FE	I	2807.3	2806.5	1	176.	605		MN	II	2809.42	2808.59	5		328	
MN	II	2807.342	2806.515	40	104.	328		NA	II	2809.510	2808.685	4		693	
V	II	2807.369	2806.544	4	100.	478		V	II	2809.527	2808.701	4	36.	478	
NI	II	2807.546	2806.719	5		835		O	II	2809.61	2808.78	10		168	P
V	II	2807.61	2806.79	3		478		FE	III	2809.801	2808.974	20		288	
MN	I	2807.619	2806.794	10	22.	148		K	II	2809.82	2808.99	40	7.	488	
MN	II	2807.656	2806.828	40	66.	328		NI	II	2809.871	2809.044	10		835	
MN	II	2807.726	2806.899	20		328		MN	I	2809.929	2809.103	25	6.	148	
CO	II	2807.77	2806.94	1		825		TI	I	2809.975	2809.150	50	29.	488	
MN	I	2807.803	2806.977	4	22.	148		V	II	2810.010	2809.184	1	36.	478	
FE	I	2807.8115	2806.9843	380	45.	896		MN	II	2810.020	2809.192	100	65.	328	
AR	III	2807.85	2807.02	40		79		CR	II	2810.10	2809.27	6	197.	340	
NI	II	2807.910	2807.083	10		835		N	IV	2810.18	2809.35	20	18.99	824	
CU	II	2807.9822	2807.1552	4		612		MN	II	2810.216	2809.389	50		328	
CR	III	2808.00	2807.18	5		490		AR	IV	2810.27	2809.44	160	4.	488	
CO	II	2808.000	2807.173	10		825		NE	II	2810.3118	2809.4842	100	10.	389	
FE	II	2808.006	2807.179	3	281.	896		V	II	2810.339	2809.513	15	143.	478	
TI	III	2808.03	2807.20	1		227		NA	II	2810.340	2809.515	60		693	
FE	I	2808.0722	2807.2452	3	2.	896		CR	II	2810.39	2809.56	5	197.	340	
NI	II	2808.215	2807.388	3		835		CR	II	2810.45	2809.62	2		340	
CR	I	2808.26	2807.43	1		341		MN	II	2810.489	2809.661	30		328	
F	IV	2808.28	2807.46	1		173		CO	II	2810.50	2809.67	4		825	
MN	II	2808.347	2807.520	30		328		O	III	2810.565	2809.739	25		1032	
NI	II	2808.387	2807.560	1		835		MG	I	2810.588	2809.761	5		1017	
MN	II	2808.413	2807.585	50	66.	328		CU	I	2810.61	2809.78	1		672	
CO	II	2808.43	2807.60	5		825		FE	II	2810.611	2809.783	10	380.	896	
BR	II	2808.430	2807.606	350		606		MN	II	2810.64	2809.81	10		328	
CR	II	2808.46	2807.63	5		340		MN	II	2810.75	2809.92	1		328	
FE	V	2808.69	2807.87			229	F	CR	I	2810.758	2809.932	10	89.	341	
SC	II	2808.73	2807.91	1		1028		SC	IV	2810.785	2809.960	220		720	
FE	I	2808.79	2807.96	1	94.	605		MN	II	2810.83	2810.00	0		328	
MN	I	2808.840	2808.015	20	6.	148		CR	II	2810.86	2810.03	20	307.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	2810.984	2810.158	60	120.	478		V	II	2812.808	2811.982	5	143.	478	
NI	II	2811.049	2810.221	10		835		CR	II	2812.83	2812.00	85	182.	340	
MN	II	2811.076	2810.247	80	71.	328		FE	I	2812.8704	2812.0422	12	170.	896	
FE	I	2811.090	2810.262	5		896	M	TI	II	2812.88	2812.05	1		601	
V	II	2811.098	2810.272	100	120.	478		MN	I	2812.917	2812.090	1		148	
CO	II	2811.10	2810.28	10		825		FE	I	2812.943	2812.114	3		896	M
TI	II	2811.101	2810.276	50	25.	488		V	II	2812.990	2812.164	6	143.	478	
CU	II	2811.193	2810.366	1		612		MN	II	2813.092	2812.264	100	71.	328	
SI	V	2811.23	2810.40	50		941		CR	II	2813.14	2812.31	2	312.	340	
CR	I	2811.329	2810.503	5	77.	341		FE	I	2813.14	2812.31	1	96.	605	
GE	II	2811.396	2810.568	2		676		SC	IV	2813.144	2812.318	160		720	
CR	II	2811.61	2810.78	5	99.	340		MN	II	2813.16	2812.33	40	71.	328	
CU	VI	2811.6319	2810.8039	100		612		NI	I	2813.19	2812.37	5		602	
FE	I	2811.662	2810.834	1		378		O	IV	2813.24	2812.41	10		86	
CO	II	2811.682	2810.854	15		825		CO	I	2813.276	2812.449	3		603	
MN	II	2811.71	2810.88	20		328		FE	II	2813.319	2812.493	40	215.	488	
CR	II	2811.72	2810.89	6	66.	340		NI	II	2813.349	2812.521	20		835	
CR	II	2811.88	2811.05	15	303.	340		MN	II	2813.35	2812.52	40	71.	328	
NI	II	2811.920	2811.092	10		835		TI	III	2813.40	2812.57	1		227	
MG	I	2811.940	2811.112	3		1017		NI	II	2813.410	2812.582	5		835	
CO	I	2811.952	2811.126	50		603		MN	II	2813.417	2812.588	100	71.	328	
FE	I	2811.9904	2811.1624	1	92.	896		FE	II	2813.493	2812.667	1	280.	488	
CR	I	2811.995	2811.169	12	54.	341		MN	II	2813.54	2812.71	20		328	
NI	II	2812.035	2811.207	3		835		V	II	2813.54	2812.71	3		478	
FE	II	2812.095	2811.269	40	196.	488		CU	I	2813.56	2812.74	2		672	
MN	II	2812.111	2811.283	80	51.	328		BR	II	2813.569	2812.743	0		606	
FE	V	2812.12	2811.29			229	F	MN	II	2813.605	2812.776	30	66.	328	
NI	II	2812.159	2811.331	2		835		MN	I	2813.666	2812.840	20	8.	148	
MN	I	2812.164	2811.337	4	36.	148		CO	II	2813.67	2812.84	2		825	
MN	II	2812.264	2811.436	50	51.	328		MN	I	2813.760	2812.933	2	36.	148	
F	III	2812.273	2811.445	800		537		CU	III	2813.771	2812.943	100		724	
CR	II	2812.28	2811.45	10	66.	340		TI	I	2813.789	2812.963	20	29.	488	
MN	II	2812.32	2811.49	20		328		MN	II	2813.949	2813.119	50	71.	328	
CO	I	2812.334	2811.508	50	126.	603		FE	III	2814.00	2813.17	25		188	
V	II	2812.424	2811.597	7	143.	478		FE	III	2814.068	2813.241	250	120.	188	
CO	III	2812.58	2811.75	20	27.	673		CO	II	2814.10	2813.27	1		825	
MG	I	2812.609	2811.781	2		1017		FE	I	2814.1151	2813.2866	500	44.	896	
FE	III	2812.652	2811.824	20		288		CR	I	2814.24	2813.41	1	75.	341	
NI	II	2812.788	2811.960	10		835		MN	I	2814.316	2813.489	20	8.	148	
MN	II	2812.797	2811.970	10	110.	328		CR	II	2814.36	2813.53	5	99.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	I	2814.379	2813.552	4	6.	341		TI	II	2816.40	2815.57	2		601	
CU	I	2814.385	2813.558	2		672		MN	I	2816.436	2815.609	8	36.	148	
FE	II	2814.439	2813.613	110	198.	488		CO	II	2816.532	2815.703	0		825	
CU	II	2814.4603	2813.6317	25		612		CU	I	2816.54	2815.71	1		672	
CR	I	2814.513	2813.685	4	76.	341		FE	III	2816.590	2815.761	110		288	
CO	II	2814.60	2813.77	1		825		FE	I	2816.665	2815.836	0		378	
CA	III	2814.706	2813.877	410		64		CO	II	2816.741	2815.912	2		825	
V	II	2814.76	2813.93	0		782		P	IV	2816.798	2815.969	40		937	
SI	III	2814.761	2813.912	G	88.	768		NI	II	2816.809	2815.980	5		835	
MN	I	2814.816	2813.989	12	7.	148		CO	II	2816.82	2815.99	5		825	
N	II	2814.843	2814.016		20.0	521	P	V	I	2816.820	2815.994	5		1000	
BR	II	2814.917	2814.090	100		606		CO	II	2816.98	2816.15	2		825	
GE	II	2814.929	2814.100	10		676		AL	II	2817.016	2816.189	650	7.	488	
CR	II	2815.05	2814.22	5	83.	340	F	CU	II	2817.0272	2816.1980	20		612	
FE	V	2815.15	2814.32			229		NI	II	2817.086	2816.256	1		835	
V	III	2815.15	2814.32	100		325		MN	II	2817.157	2816.329	170	51.	328	
NI	I	2815.181	2814.354	15	79.	488		CR	I	2817.19	2816.36	1		341	
MN	I	2815.289	2814.462	2	36.	148		MN	II	2817.236	2816.408	6		328	
NI	II	2815.298	2814.469	8		835		O	IV	2817.39	2816.56	200		86	
CR	I	2815.35	2814.52	10	100.	341		FE	III	2817.427	2816.600	25		188	
MN	II	2815.387	2814.561	10	110.	328		MN	II	2817.455	2816.625	40		328	
NA	VI	2815.4	2814.6			108	F	CR	I	2817.513	2816.684	12	75.	341	
TI	II	2815.44	2814.61	M.		601		CR	II	2817.65	2816.83	30	58.	340	
MN	II	2815.48	2814.66	20		328		F	II	2817.728	2816.899	4		538	
NE	I	2815.520	2814.691	3		896		CR	I	2817.78	2816.95	7	76.	341	
MN	II	2815.62	2814.79	10		328		CO	II	2817.805	2816.976	0		825	
V	II	2815.730	2814.903	15	120.	478		CR	II	2817.83	2817.00	15	307.	340	
CO	I	2815.803	2814.976	25	1.	603		CU	II	2817.9139	2817.0844	2		612	
FE	I	2815.8434	2815.0144	3	138.	896		FE	II	2817.917	2817.088	6	380.	896	
MN	I	2815.845	2815.018	8	36.	148		SI	III	2817.940	2817.110	130	88.	768	
MN	II	2815.854	2815.025	170	66.	328		MN	I	2817.991	2817.164	5	36.	148	
V	II	2815.859	2815.032	5	36.	478		MN	II	2818.151	2817.320	80		328	
MN	III	2816.14	2815.31	15		301		F	II	2818.152	2817.322	10		538	
CR	I	2816.145	2815.317	2	90.	341		TI	I	2818.20	2817.37	30	29.	488	
NI	II	2816.170	2815.341	8		835		NI	II	2818.237	2817.407	2		835	
V	II	2816.20	2815.37	0		782		CU	I	2818.30	2817.47	1		672	
CA	III	2816.220	2815.391	60		64		S	II	2818.33	2817.50	300		285	
FE	I	2816.3365	2815.5075	20	95.	896		FE	I	2818.3331	2817.5036	20	44.	896	
V	II	2816.375	2815.547	3	155.	478		V	II	2818.334	2817.506	60	120.	478	
CO	I	2816.383	2815.555	50	52.	603		SC	IV	2818.367	2817.539	160		720	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	II	2818.40	2817.57	8	116.	340		MN	I	2820.205	2819.326	4		148	
MN	I	2818.495	2817.667	10	22.	148		V	II	2820.272	2819.444	20	120.	478	
NI	II	2818.551	2817.722	8		835		FE	I	2820.292	2819.462	1	159.	378	
MN	II	2818.555	2817.725	30		328		SC	II	2820.39	2819.56	5	5.	488	
FE	V	2818.59	2817.76			229	F	NI	III	2820.540	2819.715	20		661	
TI	I	2818.66	2817.83	20	29.	488		MN	I	2820.555	2819.727	4		148	
TI	II	2818.666	2817.838	60	25.	488		NI	II	2820.712	2819.882	5		835	
V	II	2818.68	2817.85	0		782		MN	II	2820.813	2819.983	10	110.	328	
FE	V	2818.70	2817.87			229	F	TI	II	2820.82	2819.99	8	25.	488	
FE	I	2818.770	2817.940	5		896	M	C	II	2820.830	2820.000	4	47.	287	
MN	II	2818.78	2817.94	30		328		CO	I	2820.831	2820.002	50	1.	603	
CR	II	2818.79	2817.96	12	182.	340		FE	III	2821.010	2820.180	20		288	
MN	I	2818.767	2817.969	30	6.	148		TI	II	2821.19	2820.36	4	7.	488	
CR	II	2818.91	2818.08	3	67.	340		NI	II	2821.303	2820.472	40		835	
HE	I	2819.0	2818.2	20		126		V	III	2821.31	2820.48	0		325	
AR	III	2819.09	2818.26	60		79		CA	III	2821.403	2820.573	80		64	
NA	II	2819.100	2818.272	10		693		SI	II	2821.410	2820.580	2	24.	678	
SI	II	2819.132	2818.302	2	24.	678		NE	VIII	2821.5	2820.7			1011	
F	III	2819.158	2818.328	375		537		C	II	2821.520	2820.700	4	47.	287	
CR	II	2819.19	2818.36	75	182.	340		FE	II	2821.521	2820.690	3		896	
NI	XV	2819.3	2818.5			726	F	F	IV	2821.57	2820.74	40		173	
CR	I	2819.30	2818.47	12	75.	341		TI	III	2821.61	2820.78	3		227	
V	II	2819.35	2818.52	5	220.	478		FE	I	2821.6331	2820.8028	2		896	
CA	III	2819.370	2818.540	60		64		CR	I	2821.64	2820.81	15	100.	341	
CO	I	2819.420	2818.592	30	2.	603		BR	IV	2821.70	2820.87	250		574	
FE	III	2819.452	2818.624	90	157.	188		CR	I	2821.80	2820.97	2	90.	341	
CR	II	2819.49	2818.66	5	67.	340		V	II	2821.952	2821.124	15	86.	478	
CU	I	2819.51	2818.68	4		672		CU	I	2822.06	2821.23	1		672	
MN	I	2819.598	2818.770	20	8.	148		NI	I	2822.120	2821.291	75	25.	488	
O	III	2819.599	2818.771	4		1032		TI	II	2822.24	2821.41	8	24.	488	
CO	II	2819.72	2818.89	7		825		CO	II	2822.27	2821.44	5		825	
MN	I	2819.747	2818.919	10	8.	148		MN	I	2822.280	2821.452	20	6.	148	
TI	III	2819.822	2818.992	100		227		TI	I	2822.34	2821.51	10	19.	488	
N	II	2819.948	2819.120		20.0	521	P	SE	II	2822.35	2821.52	250	20.	468	
C	II	2819.960	2819.130	4	47.	287		SE	III	2822.35	2821.52	85		587	
CR	II	2819.99	2819.16	2	83.	340		C	II	2822.370	2821.540	4	47.	287	
CO	I	2820.002	2819.174	10		603		FE	I	2822.46	2821.63	1	134.	605	
C	IV	2820.08	2819.24	7	17.	35		FE	III	2822.493	2821.665	10		188	
FE	I	2820.1331	2819.3031	12	170.	896	Q	B	IV	2822.51	2821.66	100		221	
FE	II	2820.155	2819.327	40	196.	488		CR	I	2822.52	2821.69	3	77.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
TI	III	2822.52	2821.69	1		227		V	IV	2824.962	2824.131	20		829	
CO	I	2822.574	2821.745	30		603		NI	II	2825.045	2824.214	8		835	
NI	II	2822.575	2821.745	120		835		CR	I	2825.053	2824.224	10	89.	341	F
CO	II	2822.58	2821.75	10		825		FE	V	2825.19	2824.36			229	
CR	I	2822.59	2821.76	6	75.	341		CU	I	2825.199	2824.370	350	17.	672	
MN	II	2822.675	2821.843	50		328		FE	II	2825.231	2824.401	0	423.	488	
CR	II	2822.84	2822.01	65	182.	340		CO	II	2825.27	2824.44	7		825	
MN	II	2822.888	2822.056	40		328		V	II	2825.273	2824.444	4	35.	478	
FE	II	2822.889	2822.058	3		896		CO	I	2825.28	2824.45	1		603	
SE	III	2822.90	2822.07	120		587		TI	III	2825.28	2824.45	15		227	
CU	III	2822.901	2822.070	5		724		NE	III	2825.30	2824.47	60		1031	
V	II	2822.98	2822.15	20		478		GE	II	2825.339	2824.508	20		676	
SC	II	2823.00	2822.17	7	5.	488		CR	II	2825.37	2824.54	12		340	
MN	I	2823.104	2822.275	2		148		B	IV	2825.39	2824.56	40		221	
CR	II	2823.21	2822.38	100	82.	340		FE	II	2825.419	2824.589	5	399.	488	
V	II	2823.27	2822.44	80	222.	478		CR	I	2825.43	2824.60	2		341	
CR	I	2823.34	2822.51	2	75.	341		CO	I	2825.45	2824.62	1		603	
MN	II	2823.376	2822.545	15	110.	328		CO	II	2825.48	2824.65	4		825	
MN	I	2823.378	2822.549	30	6.	148		AR	III	2825.49	2824.66	60		79	
FE	II	2823.497	2822.668	5	231.	488		MN	II	2825.504	2824.673	60		328	
CO	II	2823.56	2822.73	1		825		FE	I	2825.5314	2824.7001	3	170.	896	F
AS	II	2823.6092	2822.7783	1		425		FE	V	2825.62	2824.79			229	
C	II	2823.643	2822.812	10	47.	287		CR	I	2825.70	2824.87	1	76.	341	
CU	I	2823.69	2822.86	0		672		V	II	2825.85	2825.02	5	221.	478	
NI	II	2823.710	2822.879	2		835		TI	I	2825.89	2825.06	10	19.	488	
CO	II	2823.764	2822.932	3		825		P	II	2825.900	2825.069	10		496	
NE	III	2823.78	2822.95	140		1031		FE	V	2825.97	2825.14			229	F
CO	II	2823.82	2822.99	3		825		MN	II	2825.971	2825.138	3	110.	328	
CR	I	2823.91	2823.08	1	89.	341		NI	II	2825.973	2825.142	3		835	
MN	I	2824.097	2823.268	5	7.	148		CO	I	2825.980	2825.153	75		603	
FE	I	2824.1069	2823.2760	170	44.	896		CR	I	2826.026	2825.196	8	88.	341	
CO	II	2824.11	2823.28	1		825		NI	II	2826.063	2825.231	15	25.	835	
N	II	2824.466	2823.635	110	17.	200		CO	II	2826.082	2825.250	200		825	
CO	I	2824.476	2823.647	5		603		NE	I	2826.089	2825.259	10		723	
P	II	2824.519	2823.689	15		496		NE	III	2826.11	2825.28	80		1031	
CR	I	2824.63	2823.80	1		341		NI	II	2826.248	2825.416	1		835	
F	IV	2824.63	2823.80	25		173		NI	II	2826.309	2825.477	1		835	
MN	I	2824.643	2823.813	1		148		CR	II	2826.33	2825.50	20	83.	340	
NI	II	2824.708	2823.877	2		835		MN	I	2826.387	2825.552	2		148	
CA	III	2824.947	2824.116	40		64		FE	I	2826.3874	2825.5557	240	45.	896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NE	I	2826.443	2825.613	40		796		CR	II	2828.78	2827.95	15		340	
NI	II	2826.472	2825.641	50		835		CA	III	2828.833	2828.001	40		64	
FE	I	2826.5190	2825.6874	50	3.	896		TI	I	2828.88	2828.05	20	19.	488	
CO	II	2826.52	2825.69	4		825		TI	II	2828.981	2828.150	60	25.	488	
CR	II	2826.56	2825.73	4		340		CR	I	2828.998	2828.167	12	54.	341	
FE	II	2826.577	2825.747	40	195.	488		FE	V	2829.07	2828.24			229	F
NE	III	2826.65	2825.82	100		1031		FE	V	2829.08	2828.25			229	F
B	IV	2826.68	2825.87	80		221		AR	II	2829.10	2828.27	0		506	
V	II	2826.69	2825.86	50	221.	478		CO	I	2829.296	2828.466	15		603	
CO	I	2826.72	2825.89	0		603		MN	II	2829.299	2828.468	30		328	
S	II	2826.73	2825.90	300		285		FE	II	2829.459	2828.627	6	231.	896	H
TI	III	2826.74	2825.90	1		227		MN	II	2829.48	2828.65	2		328	
CR	N	2826.78	2825.95	7.	115.	340		FE	II	2829.510	2828.678	5	255.	896	
CU	III	2826.822	2825.990	10		724		CU	II	2829.5292	2828.6970	20		612	
FE	I	2826.8261	2825.9945	1	3.	896		MN	I	2829.592	2828.762	6	7.	148	
FE	II	2826.854	2826.024	70	255.	488		CR	II	2829.62	2828.79	15	117.	340	
NI	II	2826.874	2826.043	3		835		TI	II	2829.63	2828.80	30	24.	488	
F	IV	2826.96	2826.13	60		173		AS	II	2829.6336	2828.8013	170		425	
CR	II	2826.98	2826.15	10	182.	340		FE	I	2829.6405	2828.8082	110	45.	896	
CU	I	2827.03	2826.20	1		672		MN	II	2829.669	2828.838	12	110.	328	
NI	II	2827.102	2826.270	20		835		TI	II	2829.70	2828.87	30	25.	488	
P	II	2827.104	2826.272	25		496		CU	II	2829.7509	2828.9185	20		612	
MN	II	2827.110	2826.281	10	110.	328		MN	II	2829.800	2828.967	20		328	
CR	II	2827.25	2826.42	7		340		GE	I	2829.8400	2829.0076	20	21.	7	
FE	I	2827.3291	2826.4973	8	92.	896		HE	I	2829.908	2829.076	40	12.	497	
CU	I	2827.33	2826.50	1		672		CO	II	2829.91	2829.08	4		825	
SC	II	2827.52	2826.69	10	5.	488		D	IV	2829.99	2829.16	40		86	
NI	II	2827.525	2826.693	1		835		CO	II	2830.02	2829.19	6		825	
CR	I	2827.564	2826.734	20	100.	341		SI	III	2830.06	2829.23	3	88.	763	
CO	I	2827.627	2826.797	50	126.	603		AS	II	2830.101	2829.268	5		425	
V	II	2827.72	2826.89	5		478		MN	II	2830.14	2829.30	5		328	
NI	II	2827.958	2827.126	10		835		N	II	2830.190	2829.358	5	55.	200	
TI	II	2828.05	2827.22	10	24.	488		CU	I	2830.25	2829.42	5		672	
FE	II	2828.262	2827.431	110	231.	488		NI	II	2830.284	2829.452	3		835	
NI	II	2828.339	2827.507	5		835		NI	II	2830.377	2829.545	1		835	
P	II	2828.36	2827.52	00		431		NI	III	2830.44	2829.61	2		661	
NE	I	2828.421	2827.589	10		896		CR	I	2830.556	2829.725	5	75.	341	
FE	I	2828.50	2827.67	2	169.	605		NA	II	2830.682	2829.851	10		693	
SC	II	2828.64	2827.81	2		1028		CU	I	2830.71	2829.88	1		672	
FE	I	2828.7240	2827.8919	12	3.	896		CR	I	2830.734	2829.903	5	89.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
SI	III	2830.86	2830.02	3	90.	768		SC	III	2832.587	2831.754	20		855	
TI	I	2830.86	2830.03	20	19.	488		FE	V	2832.61	2831.78			229	F
FE	II	2830.892	2830.061	1	259.	488		CO	II	2832.66	2831.83	7		825	
CR	II	2830.91	2830.08	8	83.	340		GE	II	2832.6763	2831.8432	1000	12.	676	
MN	II	2830.99	2830.16	2		328		NI	II	2832.694	2831.861	3		835	
CU	II	2831.0642	2830.2316	35		612		FE	II	2832.715	2831.883	5	399.	488	
CR	II	2831.07	2830.24	10	182.	340		NI	II	2832.771	2831.937	5		835	
AS	II	2831.1918	2830.3591	340		425		NI	II	2832.883	2832.050	10		835	
N	II	2831.20	2830.36	1	55.	200		TI	II	2832.990	2832.158	20	7.	488	
V	II	2831.233	2830.402	40	155.	478		NI	II	2833.043	2832.209	50		835	
CR	II	2831.29	2830.46	100	82.	340		TI	I	2833.09	2832.26	10	19.	488	
MN	II	2831.306	2830.473	60		328		NI	II	2833.100	2832.267	140		835	
NI	II	2831.321	2830.496	2		835		FE	II	2833.102	2832.270	1	347.	488	
CR	II	2831.43	2830.60	60	81.	340		SC	I	2833.17	2832.34	2		1030	M
NI	III	2831.506	2830.672	8		661		CL	II	2833.177	2832.343	53		613	
NI	II	2831.508	2830.675	4		835		CU	II	2833.2547	2832.4215	20		612	
V	II	2831.53	2830.70	3	221.	478		FE	I	2833.2690	2832.4358	380	44.	896	
MN	II	2831.554	2830.720	80		328		NI	II	2833.277	2832.444	2		835	
FE	I	2831.587	2830.754	0		378		CR	II	2833.28	2832.45	60	195.	340	
MN	I	2831.624	2830.793	20	6.	148		CU	I	2833.32	2832.49	5		672	
AR	II	2831.667	2830.834	5		506		NI	II	2833.625	2832.791	15		835	
MN	II	2831.679	2830.848	30		328		CR	I	2833.625	2832.794	8	89.	341	
CR	I	2831.73	2830.90	2	14.	341		NE	I	2833.753	2832.921	8		723	
V	II	2831.735	2830.902	15		782		KF	II	2833.83	2833.00	100	10.	488	
MN	II	2831.748	2830.914	20		328		CU	II	2833.886	2833.053	1		612	
CU	I	2831.76	2830.93	3		672		FE	II	2833.918	2833.085	10	380.	896	
FE	II	2831.793	2830.960	6	280.	896		MN	I	2834.003	2833.171	3		148	
V	II	2831.80	2830.97	3	222.	478		NI	II	2834.155	2833.321	8		835	
CR	I	2831.870	2831.039	12	88.	341		SC	II	2834.19	2833.36	1		1028	
NI	II	2831.886	2831.054	5		835		CR	II	2834.20	2833.37	8	214.	340	
AS	II	2831.9972	2831.1643	340		425		FE	III	2834.206	2833.373	20		288	
FE	II	2832.088	2831.255	6		896		FE	I	2834.235	2833.401	30	137.	896	
CO	II	2832.16	2831.32	4		825		FE	I	2834.241	2833.408	3		896	M
NI	II	2832.187	2831.354	15		835		NI	II	2834.436	2833.602	2		835	
TI	I	2832.23	2831.40	10	19.	488		NI	II	2834.532	2833.699	1		835	
SI	III	2832.323	2831.490	80	88.	768		FE	I	2834.650	2833.817	3		896	M
FE	II	2832.394	2831.561	25	217.	896	H	MN	II	2834.687	2833.853	30		328	
V	II	2832.43	2831.60	10	221.	478		CO	I	2834.754	2833.922	40	2.	603	
NI	II	2832.455	2831.622	30		835		F	III	2834.818	2833.985	600		537	
AL	III	2832.540	2831.699	D		826		CR	I	2834.875	2834.043	3		341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	IV	2834.925	2834.089	5		829		CL	II	2836.439	2835.606	23		613	
NI	II	2834.944	2834.110	100		835		CO	II	2836.44	2835.61	2		825	
TI	II	2834.97	2834.14	10	24.	488		CR	II	2836.46	2835.63	200	5.	340	
NI	II	2835.006	2834.172	5		835		TI	I	2836.46	2835.63	20	19.	488	
FE	I	2835.0064	2834.1728	6	93.	896		F	III	2836.463	2835.629	700		537	
CR	II	2835.07	2834.24	60	195.	340		V	I	2836.492	2835.660	5	56.	1000	
CR	II	2835.11	2834.28	35	326.	340		FE	I	2836.495	2835.661	5		896	M
CU	I	2835.11	2834.30	2		672		NI	II	2836.537	2835.703	10		835	
GE	II	2835.113	2834.279	50	15.	676		FE	II	2836.545	2835.711	12	216.	896	
NI	II	2835.188	2834.354	5		835		NI	II	2836.650	2835.816	10		835	
AS	II	2835.202	2834.369	5		425		FE	III	2836.76	2835.92	5		288	
BR	II	2835.24	2834.41	0		606		FE	I	2836.7838	2835.9497	110	93.	896	
FE	I	2835.2470	2834.4133	1	92.	896		TI	I	2836.92	2836.09	10	19.	488	
FE	I	2835.2530	2834.4194	1	90.	896		FE	III	2836.939	2836.107	40	126.	188	
CO	I	2835.260	2834.428	50	52.	603		BR	II	2836.959	2836.126	50		606	
SI	II	2835.306	2834.472	3	24.	678		FE	II	2837.018	2836.185	70	294.	488	
NI	II	2835.358	2834.525	100		835		NI	II	2837.029	2836.195	2		835	
V	II	2835.38	2834.55	30	222.	478		O	IV	2837.09	2836.26	250		86	
NI	I	2835.380	2834.547	15	2.	488		CU	II	2837.1241	2836.2900	40		612	
MN	II	2835.460	2834.626	5		328		O	II	2837.14	2836.31	10		168	P
AL	III	2835.512	2834.672	D		826		MN	I	2837.142	2836.310	20	6.	148	
TI	I	2835.58	2834.75	20	19.	488		FE	I	2837.149	2836.315	5	175.	896	
FE	I	2835.5873	2834.7535	10	159.	896		TI	I	2837.23	2836.40	10	19.	488	
V	I	2835.71	2834.88	3		1000		NI	II	2837.259	2836.425	75		835	
AS	II	2835.712	2834.878	100		425		MN	III	2837.270	2836.436	3		301	
CO	II	2835.773	2834.939	15		825		CR	II	2837.30	2836.47	30	214.	340	
FE	V	2835.78	2834.95			229	F	FE	II	2837.342	2836.509	70	294.	488	
CU	II	2835.804	2834.970	3		612		V	II	2837.360	2836.527	50	61.	478	
NI	II	2835.894	2835.060	100		835		TI	I	2837.43	2836.60	10	19.	488	
CR	I	2835.99	2835.16	2	88.	341		TI	II	2837.43	2836.60	15	24.	488	
NE	I	2836.069	2835.236	50		796		NI	II	2837.446	2836.612	1		835	
CR	I	2836.074	2835.242	7	55.	341		CO	I	2837.47	2836.64	0		603	
MN	II	2836.15	2835.32	0		328		CO	II	2837.48	2836.64	10		825	
V	II	2836.18	2835.35	6	222.	478		S	II	2837.48	2836.64	300		285	
CO	II	2836.23	2835.39	1		825		CU	II	2837.531	2836.697	5		612	
CL	IV	2836.23	2835.40	400		43		C	II	2837.544	2836.710	1000	13.	287	
FE	I	2836.2905	2835.4565	15	2.	896		V	I	2837.546	2836.714	3	6.	1000	
V	II	2836.30	2835.47	4	160.	478		NI	II	2837.593	2836.758	2		835	
MN	II	2836.319	2835.485	40		328		SI	II	2837.599	2836.765	1	24.	678	
CU	III	2836.380	2835.546	3		724		NI	II	2837.691	2836.857	15		835	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	I	2837.730	2836.898	4		148		V	I	2840.26	2839.43	4			
TI	IV	2837.806	2836.972	25		721		AR	II	2840.305	2839.470	10	94.	1000	
SC	IV	2837.854	2837.021	160		720		MN	II	2840.33	2839.50	0		328	
CO	I	2837.986	2837.154	75	137.	603		FE	II	2840.348	2839.513	30	391.	896	
MN	III	2838.126	2837.292	7		301		NA	II	2840.388	2839.554	40		693	
FE	II	2838.133	2837.300	110	231.	488		SI	III	2840.457	2839.622	40	88.	768	
SC	I	2838.15	2837.32	2		1030	M	GE	II	2840.514	2839.679	75	19.	676	
CU	I	2838.18	2837.34	1		672		TI	II	2840.53	2839.70	15	25.	488	
CU	II	2838.2028	2837.3683	350	130.	612		FE	II	2840.634	2839.799	20	380.	896	
NI	II	2838.250	2837.415	20		835		MN	I	2840.830	2839.997	15	5.	148	
MN	II	2838.39	2837.56	30		328		CR	II	2840.84	2840.01	85	82.	340	
S	II	2838.40	2837.63	300		285		V	II	2840.93	2840.10	10	36.	478	
CO	II	2838.415	2837.580	3		825		AL	I	2840.934	2840.099	80	13.	193	
C	II	2838.437	2837.603	800	13.	287		NI	II	2841.004	2840.168	2		835	
NI	II	2838.467	2837.632	3		835		AL	I	2841.040	2840.205	7	13.	198	
NI	II	2838.515	2837.680	3		835		CR	I	2841.125	2840.292	7	14.	341	
NI	II	2838.604	2837.769	30		835		FE	II	2841.179	2840.344	6	195.	896	
AL	I	2838.691	2837.856	7	13.	198		MN	II	2841.191	2840.355	80		328	
CR	II	2838.71	2837.88	20	81.	340		FE	I	2841.2572	2840.4220	12	2.	896	
CR	II	2838.79	2837.96	4	82.	340		CR	II	2841.26	2840.43	12	115.	340	
AL	I	2838.798	2837.963	80	13.	198		NI	II	2841.307	2840.472	20		835	
V	II	2838.886	2838.053	10	35.	478		CU	II	2841.3271	2840.4920	40		612	
FE	I	2838.9539	2838.1193	140	44.	896		V	II	2841.427	2840.593	6	36.	478	
FE	II	2839.050	2838.215	6	380.	896		FE	II	2841.484	2840.649	15	217.	896	H
FE	III	2839.212	2838.377	5		288		FE	II	2841.594	2840.758	12	280.	896	
FE	I	2839.282	2838.448	8		896	M	V	II	2841.658	2840.825	3	178.	478	
CR	I	2839.323	2838.491	10	88.	341		CR	I	2841.715	2840.891	15	88.	341	
V	II	2839.364	2838.531	4	160.	478		CU	I	2841.76	2840.92	10	66.	672	
FE	III	2839.424	2838.589	5		288		NI	II	2841.766	2840.930	20		835	
ZN	III	2839.49	2838.66	15		162		FE	I	2841.7720	2840.9367	4	123.	896	
SE	III	2839.51	2838.68	120		587		FE	III	2841.81	2840.98	20		288	
MN	II	2839.543	2838.707	40		328		MN	I	2841.817	2840.983	1		148	
CR	II	2839.61	2838.78	65	250.	340		V	II	2841.872	2841.039	50	61.	478	
FE	III	2839.757	2838.924	10		188		CR	II	2841.98	2841.15	2		340	
NI	I	2839.785	2838.951	10	68.	488		FE	II	2842.189	2841.354	20	196.	488	
P	II	2839.84	2839.01	0		431		MN	III	2842.304	2841.469	7		301	
CR	I	2839.846	2839.013	8	54.	341		P	II	2842.32	2841.49	00		431	
CL	II	2839.89	2839.06	2		345		NI	II	2842.331	2841.496	5		835	
CR	II	2840.06	2839.23	12		340		NI	II	2842.447	2841.611	8		835	
NI	II	2840.188	2839.353	20		835		CU	III	2842.523	2841.687	2		724	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
F	IV	2842.55	2841.72	10		173		V	II	2844.65	2843.82	9	221.	478	
NA	II	2842.555	2841.720	120	7.	693		NI	II	2844.663	2843.827	30		835	
TI	II	2842.749	2841.914	30	7.	488		NI	II	2844.740	2843.904	20		835	
NI	II	2842.838	2842.002	40		835		FE	I	2844.7563	2843.9202	0	2.	896	
V	II	2842.876	2842.043	2	35.	478		FE	I	2844.8126	2843.9766	320	44.	896	
FE	II	2842.911	2842.076	40	196.	488		NI	II	2844.868	2844.032	75		835	
V	II	2843.121	2842.287	6		478		CO	II	2844.87	2844.03	10		825	
CR	II	2843.15	2842.32	5	228.	340		NI	I	2844.882	2844.047	10	67.	488	
SI	I	2843.1702	2842.3345	15	82.	608		TI	II	2844.93	2844.09	2	24.	488	
CO	I	2843.216	2842.382	30	127.	603		C	III	2844.953	2844.117	20	7.28	34	
NI	II	2843.252	2842.417	50	54.	835		AR	II	2844.9649	2844.1289	30	16.	867	
CR	II	2843.26	2842.43	5	250.	340		CU	I	2844.994	2844.160	15	37.	672	
NE	I	2843.40	2842.57	166		796		NI	II	2845.042	2844.206	30		835	
MN	II	2843.44	2842.61	5		328		V	II	2845.05	2844.22	4	221.	478	
FE	II	2843.512	2842.677	5	279.	488		MN	II	2845.081	2844.246	30		328	
V	II	2843.533	2842.699	4	85.	478		CL	II	2845.11	2844.28	8		345	
NI	II	2843.537	2842.701	2		835		CR	I	2845.21	2844.38	1	88.	341	
CR	II	2843.61	2842.78	20	250.	340		MN	II	2845.386	2844.550	20		328	
FE	III	2843.702	2842.869	10		188		CR	I	2845.48	2844.65	2		341	
BR	III	2843.73	2842.89	85		586		SC	IV	2845.519	2844.683	110		720	
NI	II	2843.742	2842.906	10		835		MN	I	2845.600	2844.764	2		148	
FE	I	2843.747	2842.911	2		896		NI	II	2845.613	2844.777	20		835	
CR	I	2843.752	2842.918	10	99.	341		CR	II	2845.66	2844.83	3	181.	340	
NI	II	2843.765	2842.929	30		835		V	II	2845.667	2844.833	3	169.	478	
MN	III	2843.864	2843.028	30		301		CU	I	2845.676	2844.842	10	65.	672	
SE	III	2843.97	2843.13	10		587		ZN	III	2845.70	2844.86	1		162	
CA	III	2844.004	2843.169	60		64		MN	II	2845.73	2844.89	10		328	
NI	II	2844.025	2843.189	5		835		V	I	2845.75	2844.92	2	94.	1000	
FE	I	2844.049	2843.213	4		896		FE	II	2845.793	2844.957	5	399.	896	
CR	II	2844.07	2843.24	100	5.	340		NI	II	2845.859	2845.023	10		835	
CO	II	2844.08	2843.25	2		825		CR	I	2845.86	2845.03	2		341	
FE	II	2844.158	2843.323	70	231.	488		CA	III	2845.894	2845.058	80		64	
AR	II	2844.205	2843.369	30		506		ZN	III	2845.92	2845.08	1		162	
FE	II	2844.320	2843.485	110	294.	488		CO	II	2845.93	2845.09	2		825	
NI	II	2844.356	2843.520	75		835		CO	II	2846.04	2845.20	15		825	
CO	II	2844.43	2843.60	7		825		V	II	2846.076	2845.241	50	160.	478	
FE	I	2844.4666	2843.6307	140	43.	896		MN	II	2846.17	2845.33	10		328	
NE	I	2844.5	2843.7	1		1029		NI	II	2846.213	2845.377	75		835	
NI	II	2844.567	2843.731	5		835		FE	II	2846.228	2845.392	70	294.	488	
FE	III	2844.613	2843.779	40	126.	188		AS	II	2846.239	2845.402	0		425	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	II	2846.261	2845.425	8	399.	896		CO	II	2848.24	2847.40	5		825	
FE	II	2846.286	2845.450	70	399.	488		AS	II	2848.3080	2847.4710	80		425	
GE	II	2846.311	2845.475	5	12.	676		V	II	2848.408	2847.573	100	159.	478	
FE	II	2846.325	2845.488	3		896		NI	II	2848.418	2847.581	20		835	
NI	II	2846.334	2845.498	5		835		CO	II	2848.470	2847.633	0		825	
GE	II	2846.3637	2845.5273	1000	12.	676		NI	II	2848.543	2847.706	40		835	
FE	I	2846.3837	2845.5473	12	90.	896		S	II	2848.56	2847.73	300	10.	285	
FE	I	2846.4309	2845.5945	100	43.	896		FE	II	2848.610	2847.773	8	380.	896	
NI	II	2846.438	2845.601	15		835		AR	II	2848.6565	2847.8195	30	16.	867	
CO	II	2846.480	2845.644	15		825		AS	II	2848.7181	2847.8811	50		425	
FE	I	2846.5502	2845.7137	12	88.	896		FE	I	2848.720	2847.883	4		896	M
NI	II	2846.652	2845.815	10		835		FE	II	2848.889	2848.052	8	196.	896	H
MN	II	2846.683	2845.846	20		328		FE	II	2848.943	2848.106	15	399.	896	
AS	II	2846.774	2845.937	50		425		CO	II	2848.957	2848.120	7		825	
NI	II	2846.828	2845.991	5		835		CU	I	2848.99	2848.15	1		672	
CR	I	2846.858	2846.024	12	99.	341		SC	IV	2848.996	2848.159	220		720	
MN	II	2846.873	2846.036	100		328		CR	II	2849.08	2848.15	4	81.	340	
TI	II	2846.93	2846.09	15	24.	488		MN	III	2849.085	2848.248	2		301	
BR	II	2846.963	2846.127	220	12.	488		BR	II	2849.149	2848.312	90	12.	488	
V	II	2847.12	2846.29	1		478		FE	II	2849.157	2848.320	15	391.	896	
CR	II	2847.16	2846.32	25	296.	340		NI	II	2849.166	2848.329	2		835	
CR	II	2847.27	2846.44	30	250.	340		MG	I	2849.179	2848.342	80	5.	1017	
CU	I	2847.313	2846.478	15	38.	672		CR	II	2849.24	2848.40	20	250.	340	
CR	I	2847.32	2846.49	4		341		CU	II	2849.3372	2848.5001	90		612	
NE	I	2847.326	2846.490	2		723		CO	I	2849.44	2848.61	0		603	
V	I	2847.387	2846.600	20		1000		MN	III	2849.460	2848.623	3		301	
NI	II	2847.399	2846.562	50		835		FE	I	2849.5511	2848.7139	40	43.	896	
MN	III	2847.465	2846.628	3		301		CU	II	2849.5625	2848.7253	90		612	
CO	II	2847.53	2846.70	6		825		V	I	2849.643	2848.807	15	6.	1000	
CR	II	2847.53	2846.70	15	116.	340		FE	II	2849.736	2848.899	110	317.	488	
MG	I	2847.552	2846.716	60	5.	1017		NI	II	2849.758	2848.921	3		835	
NI	II	2847.640	2846.803	50		835		ZN	III	2849.80	2848.96	20		162	
FE	I	2847.6664	2846.8296	6	87.	896		C	III	2849.887	2849.050	110	24.	34	
CU	II	2847.7052	2846.8685	40		612		V	II	2849.890	2849.055	40	61.	478	
MN	II	2847.717	2846.879	20		328		V	I	2849.921	2849.086	4		1000	
MN	III	2847.724	2846.887	1		301		BR	II	2849.972	2849.135	0		606	
LI	III	2847.859	2847.022			309		V	I	2850.032	2849.197	15	6.	1000	
AR	II	2847.983	2847.146	20		506		ZN	III	2850.06	2849.22	30		162	
FE	II	2848.044	2847.208	70	197.	488		NI	III	2850.07	2849.23	2		661	
TI	III	2848.09	2847.26	3		227		CR	I	2850.14	2849.30	8	99.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	II	2850.17	2849.33	18	81.	340		MG	I	2852.498	2851.660	100	5.	1017	
CO	I	2850.22	2849.38	2		603		FE	II	2852.560	2851.722	12	391.	896	
NI	II	2850.389	2849.552	10		835		CU	I	2852.579	2851.743	15	38.	672	
CO	II	2850.40	2849.56	5		825		CO	I	2852.58	2851.74	2		603	
FE	II	2850.443	2849.605	4	196.	896		CO	II	2852.59	2851.75	5		825	
AS	II	2850.457	2849.619	0		425		V	I	2852.620	2851.784	20	6.	1000	
AS	II	2850.565	2849.727	2		425		FE	I	2852.6347	2851.7968	280	44.	896	
NI	I	2850.659	2849.822	5	77.	488		CU	II	2852.7330	2851.8950	50		612	
CR	II	2850.67	2849.83	100	5.	340		MN	II	2852.798	2851.957	10		328	
P	IV	2850.747	2849.909	1		937		CU	II	2852.9146	2852.0766	75		612	
BR	III	2850.75	2849.91	10		586		CO	II	2852.916	2852.078	100		825	
MN	II	2850.782	2849.945	15		328		ZN	III	2852.93	2852.09	5		162	
CU	II	2850.7902	2849.9527	1		612		FE	I	2852.965	2852.127	3		896	M
CO	I	2850.882	2850.047	75	106.	603		MG	I	2852.965	2852.127	1000	1.	1017	
P	II	2850.99	2850.16	00		431		CO	II	2852.97	2852.13	10		825	
V	IV	2851.001	2850.160	2		829		CU	II	2853.0167	2852.1786	40		612	
NE	V	2851.1	2850.3	100		885	M	NI	III	2853.02	2852.18	8		661	
FE	III	2851.123	2850.288	120	155.	188		CR	II	2853.11	2852.27	25	250.	340	
CR	II	2851.13	2850.29	3	250.	340		CU	II	2853.2425	2852.4044	35		612	
CR	I	2851.30	2850.46	2		341		NI	II	2853.271	2852.433	50		835	
V	II	2851.312	2850.477	1	35.	478		V	II	2853.376	2852.540	30	169.	478	
FE	III	2851.416	2850.581	25		188		FE	I	2853.444	2852.606	10		896	M
FE	II	2851.478	2850.641	1	255.	488		CR	II	2853.51	2852.67	20	250.	340	
V	II	2851.520	2850.685	25	184.	478		CR	II	2853.59	2852.75	7	180.	340	
CR	II	2851.56	2850.72	7	228.	340		MN	II	2853.608	2852.769	3		328	
V	II	2851.601	2850.765	20	85.	478		O	III	2853.63	2852.79	4		168	P
FE	III	2851.711	2850.873	40		288		NA	I	2853.649	2852.811	650	1.	1019	
NI	III	2851.77	2850.97	2		681		CO	II	2853.65	2852.81	4		825	
CO	I	2851.782	2850.947	30	2.	603		FE	II	2853.702	2852.864	20	219.	488	
TI	II	2851.924	2851.087	20	16.	488		V	I	2853.735	2852.899	25	91.	1000	
FE	III	2851.966	2851.130	40		188		FE	I	2853.8035	2852.9653	1	89.	896	
MN	II	2852.023	2851.185	80		328		NA	I	2853.851	2853.013	570	1.	1019	
V	II	2852.095	2851.260	15	159.	478		NI	II	2853.871	2853.032	10		835	
CR	II	2852.19	2851.35	60	82.	340		ZN	III	2853.88	2853.04	15		162	
FE	II	2852.268	2851.430	5	195.	488		FE	II	2853.957	2853.119	5	294.	488	
SI	II	2852.294	2851.456	2	17.02	678		C	III	2853.97	2853.13	2	43.	34	
FE	III	2852.31	2851.47	20		288		AR	II	2854.00	2853.16	0		506	
FE	I	2852.3473	2851.5094	5	159.	896		CR	II	2854.02	2853.18	30	81.	340	
MN	II	2852.39	2851.55	20		328		FE	II	2854.037	2853.199	20	197.	488	
CR	I	2852.40	2851.56	3		341		CR	II	2854.10	2853.26	30	296.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
MN	II	2854.207	2853.369	30		328		CR	I	2856.06	2855.22	4	54.	341	
NI	II	2854.245	2853.407	50		835		V	I	2856.089	2855.252	20	6.	1000	
NI	II	2854.277	2853.439	25		835		V	II	2856.135	2855.298	40	83.	478	
CO	II	2854.37	2853.53	6		825		CU	II	2856.1595	2855.3207	30		612	
V	I	2854.380	2853.579	2		1000		FE	V	2856.20	2855.36			229	F
AR	IV	2854.48	2853.64			108	F	CR	II	2856.27	2855.43	8	250.	340	
FE	I	2854.5223	2853.6838	8	88.	896		AS	II	2856.275	2855.436	50		425	
AS	II	2854.555	2853.717	5		425		NI	II	2856.320	2855.481	8		835	
MN	III	2854.566	2853.728	70		301		TI	II	2856.33	2855.49	1	24.	488	
CU	II	2854.5789	2853.7404	4		612		V	I	2856.355	2855.518	6	77.	1000	
V	II	2854.597	2853.761	4	132.	478		NI	II	2856.396	2855.557	30		835	
CR	II	2854.60	2853.76	8	161.	340		CR	II	2856.51	2855.67	100	5.	340	
FE	I	2854.6130	2853.7716	6	159.	896		FE	II	2856.528	2855.689	8	196.	896	H
V	I	2854.66	2853.82	3	68.	1000		V	I	2856.657	2855.739	2	68.	1000	
ZN	III	2854.68	2853.84	15		162		S	III	2856.86	2856.02	400	15.	323	
NI	II	2854.729	2853.890	5		835		AS	II	2856.871	2856.032	1		425	
CR	I	2854.73	2853.89	8	99.	341		CO	I	2856.88	2856.04	1		603	
TI	II	2854.760	2853.922	10	7.	488		CO	II	2856.91	2856.07	7		825	
CR	I	2854.78	2853.94	8	14.	341		FE	II	2856.986	2856.147	4	195.	896	
GE	II	2854.808	2853.970	75	19.	676		SC	IV	2857.001	2856.162	1		720	
V	I	2854.894	2854.057	4	68.	1000		CU	II	2857.0501	2856.2111	2		612	
C	III	2854.97	2854.13	1	43.	34		TI	II	2857.08	2856.24	25	24.	488	
CR	II	2854.98	2854.14	20		340		MN	II	2857.080	2856.240	40		328	
MN	III	2854.980	2854.141	7		301		NI	II	2857.099	2856.260	5		835	
MN	II	2854.980	2854.142	20		328		CR	II	2857.16	2856.32	20	81.	340	
FE	III	2855.026	2854.190	40		188		NI	III	2857.18	2856.34	5		661	
NI	II	2855.038	2854.200	75		835		FE	II	2857.216	2856.377	12	380.	896	
CR	II	2855.07	2854.23	3	161.	340		NI	II	2857.237	2856.398	8		835	
NI	II	2855.098	2854.259	30		835		CR	II	2857.26	2856.42	4	82.	340	
MN	II	2855.15	2854.31	40		328		NA	II	2857.39	2856.55	10		693	
V	II	2855.172	2854.335	120	159.	478		TI	II	2857.455	2856.616	2	20#	488	
NI	II	2855.413	2854.575	3		835		CU	I	2857.497	2856.660	2		672	
CR	II	2855.42	2854.58	5	161.	340		CR	II	2857.61	2856.77	40	11.	340	
NE	I	2855.45	2854.61	1		1029	Q	BR	II	2857.627	2856.788	0		606	
CR	II	2855.49	2854.65	3		340		FE	II	2857.747	2856.908	30	399.	896	
CU	II	2855.8247	2854.9860	10		612		P	III	2857.797	2856.958	4		936	
MN	II	2855.853	2855.014	40		328		P	IV	2857.80	2856.96	40		937	
CR	II	2855.89	2855.05	35	214.	340		CO	I	2857.82	2856.98	0		603	
CU	II	2855.932	2855.093	2		612		C	III	2857.852	2857.013	5	26.	34	
MN	II	2856.040	2855.200	50		328		MN	II	2857.866	2857.027	50		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	II	2858.014	2857.174	5	294.	896	
F	III	2858.015	2857.176	50		537	
FE	I	2858.04	2857.20	1	123.	605	
CO	I	2858.04	2857.21	1		603	
P	IV	2858.07	2857.23	40		937	
SI	II	2858.070	2857.231	1	17.02	678	
AR	II	2858.117	2857.278	5		506	
MN	III	2858.17	2857.33	1		301	
CR	II	2858.24	2857.40	40	11.	340	
NI	II	2858.247	2857.408	100		835	
FE	II	2858.254	2857.415	70	195.	488	
V	II	2858.28	2857.44	1		478	
CU	II	2858.281	2857.442	2		612	
ZN	III	2858.43	2857.59	10		162	
CU	II	2858.5879	2857.7485	100	164.	612	
TI	II	2858.63	2857.79	15		601	
FE	I	2858.650	2857.810	4		896	
NI	II	2858.709	2857.870	1		835	
V	I	2858.810	2857.972	20	77.	1000	
CO	I	2858.82	2857.98	0		603	
CR	II	2858.83	2857.99	20	207.	340	
FE	I	2858.835	2857.996	1		378	
CO	II	2858.84	2858.00	5		825	
C	II	2858.840	2858.000	4	55.	287	
MN	II	2858.843	2858.002	20		328	
NE	II	2858.860	2858.020	50		1016	
N	V	2858.87	2858.03	40	56.	313	
CU	I	2859.063	2858.225	50	36.	672	
FE	II	2859.177	2858.340	550	279.	488	
FE	II	2859.180	2858.340	25	195.	896	
TI	II	2859.238	2858.399	8	6.	488	
SI	II	2859.354	2858.514	1	17.02	678	
FE	II	2859.356	2858.519	40	354.	488	
FE	II	2859.469	2858.629	5	399.	896	
CR	II	2859.48	2858.64	30	11.	340	
MN	I	2859.493	2858.655	30	5.	148	
FE	III	2859.501	2858.664	120	126.	188	
CU	I	2859.572	2858.734	140	17.	672	
P	II	2859.59	2858.75	0		431	
V	I	2859.624	2858.757	10	77.	1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
NI	II	2859.679	2858.839	15		835	
FE	I	2859.7353	2858.8956	12		896	
CR	II	2859.75	2858.91	75	2.	340	
V	I	2859.839	2859.001	4	5.	1000	
CU	II	2859.8450	2859.0053	65	68.	612	
NI	II	2859.941	2859.101	3		835	
N	V	2860.00	2859.16	60	56.	313	
AS	II	2860.112	2859.272	0		425	
FE	III	2860.13	2859.29	5		288	
SC	II	2860.16	2859.32	2		1028	
FE	III	2860.31	2859.47	5		288	
NA	II	2860.319	2859.481	60	6.	693	
NI	II	2860.352	2859.492	20		835	
ZN	III	2860.44	2859.60	1		162	
FE	III	2860.448	2859.608	20		288	
CO	I	2860.492	2859.654	40	52.	603	
MN	II	2860.50	2859.65	20		328	
MN	II	2860.67	2859.83	1	106.	328	
CU	II	2860.7593	2859.9193	15		612	
V	I	2860.834	2859.997	25	6.	1000	
MN	II	2860.84	2859.99	1		328	
CO	III	2860.86	2860.03	5	27.	673	
NI	II	2860.868	2860.028	5		835	
NE	VIII	2860.9	2860.1			1011	
ZN	III	2860.9	2860.1	0		162	
NI	II	2860.966	2860.126	30		835	
AS	II	2861.039	2860.199	5		425	
FE	I	2861.046	2860.206	0		378	
CU	II	2861.0894	2860.2494	10		612	
F	III	2861.166	2860.326	700		537	
AS	I	2861.28	2860.44	100	16.	480	
MN	II	2861.469	2860.628	20	106.	328	
CL	II	2861.55	2860.71	10		345	
NI	II	2861.572	2860.732	100		835	
AR	II	2861.582	2860.742	30		506	
TI	II	2861.63	2860.79	4		601	
CR	II	2861.76	2860.92	85	5.	340	
NA	II	2861.844	2861.006	4		693	
C	II	2861.900	2861.060	10	55.	287	
FE	II	2862.025	2861.187	40	61.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2862.09	2861.25	0		328		V	II	2863.75	2862.91	1		478	
TI	II	2862.129	2861.291	3		488		V	I	2863.914	2863.076	12	77.	1000	
MN	II	2862.143	2861.303	30	16.	328		NI	II	2864.055	2863.214	3		835	
CO	I	2862.189	2861.351	15	109.	603		MN	II	2864.06	2863.21	5		328	
GE	II	2862.2	2861.4	5		676		FE	I	2864.2700	2863.4292	25	87.	896	
MN	III	2862.20	2861.36	25		301		NI	II	2864.322	2863.482	30		835	
NI	II	2862.225	2861.385	2		835		CR	I	2864.322	2863.484	4	99.	341	
V	II	2862.239	2861.401	5	84.	478		S	III	2864.37	2863.53	500	15.	323	
F	IV	2862.24	2861.40	10		173		CO	I	2864.377	2863.538	3		603	
P	IV	2862.275	2861.435	25		937		CO	II	2864.389	2863.548	6		825	
O	III	2862.38	2861.54	25		168	P	CL	II	2864.39	2863.55	14		345	
MN	II	2862.380	2861.540	50	108.	328		MN	II	2864.46	2863.62	0		328	
V	I	2862.515	2861.677	1		1000		SC	II	2864.51	2863.67	2		1028	
FE	II	2862.741	2861.903	5	280.	488		NI	II	2864.540	2863.699	100	26.	835	
TI	II	2862.83	2861.99	20		601		MN	II	2864.549	2863.707	15		328	
FE	I	2862.837	2861.996	0		378		C	III	2864.553	2863.712	70	37.	34	
MN	II	2862.864	2862.023	2		328		V	II	2864.63	2863.79	2		478	
P	III	2862.893	2862.053	60		936		MN	I	2864.665	2863.827	2		148	
P	IV	2862.893	2862.053	10		937		SE	III	2864.68	2863.84	150		587	
CL	II	2862.90	2862.06	10		345		FE	I	2864.7044	2863.8635	15	2.	896	
NE	I	2862.908	2862.070	8		723		NI	II	2864.865	2864.024	220	67.	835	
CU	I	2862.91	2862.07	5		672		FE	II	2864.973	2864.134	40	380.	488	
N	III	2863.02	2862.18	250	26.	521		SC	II	2864.99	2864.15	1		1028	
V	II	2863.149	2862.310	20	159.	478		FE	II	2865.206	2864.367	20	195.	488	
CU	II	2863.1639	2862.3234	20		612		V	I	2865.225	2864.386	30	6.	1000	
TI	II	2863.18	2862.34	30	16.	488		SE	III	2865.27	2864.43	150		587	
MN	II	2863.229	2862.408	40	106.	328		CO	II	2865.29	2864.45	2		825	
FE	III	2863.246	2862.405	5		288		V	II	2865.356	2864.517	30	158.	478	
V	I	2863.255	2862.418	10	68.	1000		AR	II	2865.434	2864.593	5		506	
FE	I	2863.3345	2862.4939	15	43.	896		NI	II	2865.591	2864.750	10		835	
FE	III	2863.352	2862.511	5		288		MN	II	2865.646	2864.804	50		328	
CR	II	2863.41	2862.57	125	5.	340		NI	II	2865.795	2864.954	5		835	
TI	IV	2863.437	2862.596	60		721		FE	II	2865.807	2864.968	70	294.	488	
CO	I	2863.441	2862.602	50	1.	603		MN	II	2865.853	2865.012	1	109.	328	
NI	II	2863.564	2862.723	20		835		CR	II	2865.94	2865.10	150	5.	340	
CO	I	2863.606	2862.768	9		603		CL	II	2865.995	2865.153	16		613	
MN	II	2863.66	2862.82	15		328		MN	II	2866.020	2865.182	40	109.	328	
MN	XIII	2863.7	2862.9			726	F	FE	I	2866.030	2865.191	3		605	N
F	III	2863.703	2862.862	450		537		CR	II	2866.18	2865.34	30	11.	340	
P	IV	2863.723	2862.882	10		937		CO	II	2866.22	2865.38	5		825	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	II	2866.312	2865.473	20	391.	488		ZN	III	2868.0	2867.2	0		162	
NI	I	2866.337	2865.498	5	26.	488		F	II	2868.130	2867.288	150		536	
CO	II	2866.34	2865.50	1		825		FE	I	2868.1508	2867.3091	15	93.	896	
FE	III	2866.38	2865.54	25	89.	188		CO	I	2868.303	2867.463	4		603	
MN	II	2866.44	2865.60	10		328		FE	I	2868.4032	2867.5614	10	90.	896	
BR	IV	2866.45	2865.61	50		574		MN	II	2868.45	2867.61	0		328	
BR	III	2866.47	2865.63	30		586		CU	I	2868.473	2867.633	1		672	
CR	II	2866.49	2865.65	20	326.	340		CR	II	2868.49	2867.65	100	5.	340	
F	III	2866.521	2865.680	300		537		NI	II	2868.616	2867.774	4		835	
AR	II	2866.6846	2865.8432	40		867		FE	I	2868.7207	2867.8788	4	91.	896	
CR	II	2866.71	2865.87	50	265.	340		CU	III	2868.761	2867.916	3		724	
SC	II	2866.88	2866.04	4		1028		CR	II	2868.78	2867.94	4	180.	340	
P	III	2866.913	2866.074	150		936		MN	II	2868.831	2867.989	40	108.	328	
FE	V	2866.94	2866.10			229	F	FE	II	2868.886	2868.046	1	256.	488	
ZN	III	2867.00	2866.16	10		162		MN	II	2868.937	2868.095	10	106.	328	
FE	II	2867.043	2866.201	5		896		V	I	2868.970	2868.130	20	98.	1000	
CU	II	2867.112	2866.271	5		612		FE	III	2868.976	2868.136	60	155.	188	
MN	II	2867.18	2866.34	30		328		AR	IV	2869.00	2868.16			108	F
FE	I	2867.226	2866.385	1	168.	378		MN	II	2869.00	2868.17	5	106.	328	
AS	II	2867.291	2866.449	5		425		CO	II	2869.01	2868.17	0		825	
V	I	2867.293	2866.447	20	77.	1000		FE	I	2869.0559	2868.2140	8	142.	896	
MN	II	2867.36	2866.52	30		328		TI	II	2869.14	2868.30	0	24.	488	
NI	II	2867.368	2866.526	3		835		CL	II	2869.234	2868.392	67		613	
CA	III	2867.379	2866.538	460	11.	64		FE	II	2869.286	2868.446	70	353.	488	
CO	II	2867.390	2866.548	2		825		FE	I	2869.2955	2868.4534	6	135.	896	
V	I	2867.460	2866.620	15	98.	1000		CR	II	2869.31	2868.47	2	332.	340	
FE	I	2867.4665	2866.6249	30	43.	896		CU	I	2869.310	2868.470	10		672	
MN	I	2867.485	2866.646	2		148		CR	II	2869.47	2868.63	4	332.	340	
NE	III	2867.49	2866.65	100		1031	M	TI	II	2869.572	2868.732	15	5.	488	
CO	II	2867.52	2866.68	1		825		NI	I	2869.579	2868.739	5	76.	488	
SC	II	2867.55	2866.71	2		1028		CU	II	2869.6336	2868.7915	3		612	
CR	II	2867.58	2866.72	100	5.	340		FE	II	2869.714	2868.874	110	61.	488	H
FE	I	2867.581	2866.719	12		896		MN	I	2869.720	2868.880	7	5.	148	
FE	III	2867.641	2866.799	20		288		MN	II	2869.740	2868.898	40	106.	328	
NI	II	2867.689	2866.848	5		835		AL	IV	2869.82	2868.98	5		808	
V	I	2867.809	2866.971	10	68.	1000		V	II	2869.971	2869.131	150	159.	478	
BR	II	2867.841	2867.002	300	10.	428		NI	II	2869.978	2869.136	75		835	
BR	II	2867.876	2867.037	250		606		FE	II	2869.996	2869.156	70	257.	488	
CR	II	2867.93	2867.09	65	11.	340		FE	I	2870.072	2869.230	10		896	M
NI	II	2867.979	2867.137	3		835		MN	II	2870.094	2869.252	50		328	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
F	III	2870.11	2869.27	1		537		CR	I	2871.863	2871.023	3	60.	341	
AR	II	2870.125	2869.283	10		506		AR	II	2871.865	2871.022	10		506	
FE	I	2870.1497	2869.3075	50	2.	896		NA	VI	2871.9	2871.1			108	F
V	I	2870.324	2869.484	3	67.	1000		CO	I	2871.90	2871.06	1		603	
MN	III	2870.346	2869.504	3		301		FE	II	2871.900	2871.059	160	195.	488	
NI	II	2870.365	2869.522	140		835		NI	II	2871.945	2871.102	5		835	
CR	II	2870.45	2869.61	3	332.	340		FE	II	2871.966	2871.125	160	230.	488	
MN	II	2870.463	2869.620	40	109.	328		CO	II	2872.053	2871.213	25		825	
FE	II	2870.534	2869.694	20	257.	488		NA	II	2872.111	2871.270	60		693	
CR	II	2870.56	2869.72	3	332.	340		FE	I	2872.115	2871.273	1		896	M
CU	I	2870.64	2869.80	2		672		FE	I	2872.15	2871.31	1	174.	605	
FE	I	2870.668	2869.826	5	142.	896		AR	II	2872.242	2871.399	10		506	
BR	II	2870.675	2869.835	0		606		F	II	2872.247	2871.404	250		538	
MN	II	2870.73	2869.89	8		328		CR	II	2872.29	2871.45	20	295.	340	
CO	II	2870.770	2869.928	5		825		V	II	2872.304	2871.463	4	151.	478	
CA	III	2870.787	2869.945	520	7.	64		MN	II	2872.371	2871.527	40	109.	328	
NE	II	2870.798	2869.956	40		1016		V	II	2872.384	2871.543	3	131.	478	
V	II	2870.798	2869.957	10	12.	478		MN	I	2872.426	2871.583	1		148	
F	III	2870.841	2869.999	250		537		CR	I	2872.469	2871.628	22	12.	341	
CR	I	2870.85	2870.01	10		341		MN	II	2872.521	2871.677	30	106	328	
TI	II	2870.88	2870.04.	25		488	N	FE	I	2872.57	2871.73	1	149.	605	
V	I	2870.88	2870.04	5	67.	1000		NI	II	2872.741	2871.898	8		835	
MN	II	2870.929	2870.085	220		328		FE	III	2872.828	2871.985	5		288	
NI	II	2870.944	2870.101	10		835		S	III	2872.84	2872.00	200	15.	323	
V	II	2870.951	2870.111	9	35.	478		SE	II	2872.92	2872.08	50	19.	468	
SE	III	2871.01	2870.17	150		587		NI	II	2872.996	2872.153	20		835	
CR	I	2871.016	2870.175	10	55.	341		ZN	III	2873.02	2872.18	5		162	
FE	III	2871.06	2870.22	40		280		NI	II	2873.051	2872.208	100		835	
NI	II	2871.190	2870.348	10		835		CR	I	2873.12	2872.28	2		341	
CR	II	2871.27	2870.43	100	11.	340		FE	I	2873.1768	2872.3338	50	43.	896	
SC	I	2871.30	2870.46	1		1030	M	FE	II	2873.223	2872.382	360	230.	488	
MN	I	2871.305	2870.464	1		148		MN	II	2873.243	2872.400	40	69.	328	
CO	I	2871.346	2870.506	3		603		CD	I	2873.338	2872.497	15	107.	603	
AR	II	2871.383	2870.540	10		506		FE	I	2873.3417	2872.4987	0		896	
V	I	2871.415	2870.575	35	6.	1000		BR	II	2873.379	2872.538	350	12.	488	
FE	II	2871.448	2870.608	40	195.	488		NI	II	2873.405	2872.562	3		835	
MN	II	2871.523	2870.680	15	106.	328		MN	I	2873.424	2872.583	30	5.	148	
MN	II	2871.662	2870.818	50	106.	328		NE	I	2873.510	2872.666	25		896	
SC	II	2871.74	2870.90	2		1028		V	II	2873.647	2872.806	1		478	
NI	II	2871.800	2870.957	5		835		MN	II	2873.779	2872.935	170		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CU	II	2873.7894	2872.9462	4		612		MN	II	2875.686	2874.842	30		328	
NA	II	2873.79	2872.95	1		693		FE	I	2875.7242	2874.8806	8	142.	896	
NE	II	2873.8035	2872.9604	60		389		CR	II	2875.87	2875.03	30	265.	340	
P	III	2873.871	2873.028	25		936		SI	III	2875.93	2875.09	7	92.	768	
MN	II	2873.971	2873.128	30	108.	328		MN	II	2876.040	2875.196	0		328	
F	II	2873.979	2873.136	120		538		CU	I	2876.081	2875.240	2		672	
V	II	2874.022	2873.180	30	142.	478		FE	I	2876.090	2875.246	4		896	M
CR	I	2874.022	2873.181	12	60.	341		FE	I	2876.1456	2875.3019	10	86.	896	
BR	II	2874.057	2873.216	100	11.	488		F	III	2876.17	2875.33	1		537	
MN	II	2874.13	2873.29	0	108.	328		CU	II	2876.1780	2875.3342	4		612	
BR	II	2874.134	2873.293	100		606		FE	II	2876.192	2875.348	8	258.	896	H
CO	I	2874.16	2873.32	5		603		BR	II	2876.214	2875.372	220	11.	488	
V	I	2874.219	2873.378	2		1000		TI	II	2876.23	2875.39	15		488	N
FE	II	2874.240	2873.399	450	279.	488	H	MN	II	2876.274	2875.430	40		328	
CR	II	2874.30	2873.46	65	5.	340		CO	II	2876.28	2875.44	6		825	
MN	II	2874.441	2873.598	20		328		CR	I	2876.28	2875.44	5	54.	341	
FE	I	2874.4960	2873.6527	8	158.	896		CO	I	2876.280	2875.438	2		603	
MN	II	2874.59	2873.75	4		328		BR	II	2876.287	2875.446	150		606	
FE	III	2874.636	2873.795	40	155.	188		ZN	III	2876.37	2875.53	15		162	
CR	II	2874.65	2873.81	50	11.	340		CU	I	2876.51	2875.67	10	66.	672	
CO	II	2874.72	2873.88	0		825		ZN	III	2876.52	2875.68	15		162	
SC	IV	2874.741	2873.900	160		720		V	II	2876.529	2875.687	30	12.	478	
MN	II	2874.77	2873.93	0		328		FE	III	2876.553	2875.711	10		188	
CR	II	2874.91	2874.07	8	229.	340		TI	II	2876.63	2875.79	10		601	
TI	II	2874.92	2874.08	2	14.	488		MN	II	2876.637	2875.793	20		328	
FE	I	2875.0159	2874.1725	80	2.	896		CO	II	2876.71	2875.87	5		825	
CO	I	2875.037	2874.196	4	107.	603		F	II	2876.715	2875.871	120		538	
V	II	2875.047	2874.205	5	35.	478		CR	II	2876.81	2875.97	100	11.	340	
F	II	2875.052	2874.208	25		538		CU	I	2876.867	2876.025	2		672	
C	III	2875.080	2874.240	1	22.	34		NI	I	2876.932	2876.090	10	25.	488	
GA	I	2875.082	2874.240	160	1.	488		ZN	III	2876.94	2876.10	10		162	
NI	III	2875.232	2874.391	8		661		P	II	2876.997	2876.153	15		496	
C	III	2875.270	2874.430	5	22.	34		CR	II	2877.08	2876.24	60	5.	340	
CR	II	2875.35	2874.51	10		340		O	I	2877.139	2876.294	100	30.0	210	
CU	I	2875.402	2874.560	20	66.	672		CR	II	2877.14	2876.30	40	288.	340	
AR	II	2875.4255	2874.5819	40		867		NE	II	2877.173	2876.329	80		1016	
SI	III	2875.470	2874.626	25	92.	768		MN	II	2877.176	2876.331	10		328	
C	III	2875.566	2874.722	40	22.	34		CO	I	2877.225	2876.383	3		603	
NE	V	2875.6	2874.8	70		885	M	CO	II	2877.24	2876.40	4		825	
F	II	2875.636	2874.792	200		538		CL	II	2877.242	2876.398	35		613	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
NE	II	2877.312	2876.468	70		1016		V	II	2879.856	2879.013	2	154.	478	
F	II	2877.324	2876.480	150		538		AS	II	2879.877	2879.033	1		425	
CU	III	2877.468	2876.624	5		724		V	II	2880.000	2879.158	40	12.	478	
CR	II	2877.50	2876.66	20	263.	340		CR	II	2880.01	2879.17	10	56.	340	
FE	I	2877.569	2876.725	1		378		FE	II	2880.064	2879.241	70	278.	488	
FE	II	2877.648	2876.804	4	257.	896		CR	I	2880.11	2879.27	22	12	341	
CO	I	2877.66	2876.82	2		603		ZN	III	2880.15	2879.31	10		162	
AL	III	2877.698	2876.819	D		826		AR	II	2880.172	2879.327	40		506	
CO	I	2877.71	2876.86	2		603		MN	II	2880.22	2879.37	1		328	
AR	II	2877.733	2876.889	5		506		NI	II	2880.227	2879.382	10		835	
V	II	2877.781	2876.939	9	82.	478		FE	I	2880.3018	2879.4570	0	136.	896	
CU	II	2877.863	2877.019	2		612		MN	II	2880.327	2879.482	220	61.	328	
CU	I	2877.943	2877.101	5		672		CL	II	2880.34	2879.50	4.		345	
ZN	III	2878.09	2877.25	1		162		FE	II	2880.386	2879.543	20	230.	488	
F	III	2878.144	2877.300	12		537		CO	I	2880.455	2879.612	25		603	
FE	I	2878.1449	2877.3007	40	86.	896		FE	III	2880.48	2879.64	5		288	
TI	II	2878.260	2877.418	30	14.	488		CR	II	2880.52	2879.68	3		340	
P	III	2878.370	2877.525	90		936		FE	I	2880.586	2879.741	0		378	
AS	II	2878.3913	2877.5470	125		425		CU	I	2880.586	2879.743	2		672	
N	II	2878.525	2877.681	70	32.	200		N	II	2880.596	2879.751	70	32.	200	
V	II	2878.531	2877.689	60	82.	478		ZN	III	2880.67	2879.83	15		162	
CU	II	2878.5441	2877.6998	600	174.	612		CL	II	2880.68	2879.84	6		345	
AL	III	2878.692	2877.815	D		826		MN	II	2880.692	2879.847	100	69.	328	
CR	II	2878.81	2877.97	60	5.	340		FE	II	2880.692	2879.849	1	293.	488	
V	II	2878.871	2878.028	7	142.	478		F	III	2880.75	2879.90	30		537	
NI	II	2878.889	2878.045	20		835		MN	II	2880.78	2879.94	3		328	
NE	II	2878.960	2878.116	5		1016		V	II	2880.81	2879.97		82.	488	P
V	II	2879.141	2878.299	3	168.	478		V	II	2880.869	2880.026	150	12.	478	
AS	II	2879.184	2878.340	5		425		CR	II	2880.92	2880.08	2		340	
CR	II	2879.29	2878.45	50	5.	340		CO	II	2880.936	2880.091	2		825	
CO	I	2879.401	2878.558	12	127.	603		FE	II	2880.979	2880.136	1	308.	488	
O	III	2879.44	2878.59	1		168		MN	I	2881.113	2880.270	1		148	
P	III	2879.474	2878.629	4		936	P	TI	II	2881.12	2880.28	3	20.	488	
FE	I	2879.606	2878.762	1		378		NE	I	2881.133	2880.290	3		723	
CU	I	2879.70	2878.86	5		672		BR	II	2881.180	2880.337	10		606	
O	I	2879.776	2878.931		30.0	210		AS	II	2881.2211	2880.3761	125		425	
FE	I	2879.7962	2878.9516	4	136.	896		MN	II	2881.256	2880.410	10		328	
O	I	2879.822	2878.977	200	30.0	210		CR	I	2881.26	2880.42	2		341	
O	I	2879.835	2878.990		30.0	210		FE	I	2881.4241	2880.5791	5	43.	896	
NI	I	2879.841	2878.998	15	76.	488		CR	I	2881.46	2880.62	2	13.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CU	II	2881.5455	2880.7004	20		612		CU	I	2883.777	2882.934	390	16.	672	
FE	II	2881.602	2880.757	5	61.	896	H	F	IV	2883.83	2882.99	1		173	
MN	II	2881.604	2880.758	12		328		NI	II	2883.841	2882.996	2		835	
NI	II	2881.626	2880.781	1		835		S		2884.	2883.			107	N
CO	II	2881.64	2880.79	1		825		CU	II	2884.034	2883.189	20		612	
V	II	2881.645	2880.802	15	142.	478		FE	III	2884.066	2883.220	5		288	
FE	II	2881.676	2880.831	4	258.	896	H	CR	I	2884.14	2883.30	2	60.	341	
CR	II	2881.70	2880.86	75	11.	340		CO	II	2884.24	2883.39	4		825	
S	II	2881.84	2881.01	300	10.	285		CO	I	2884.445	2883.602	15	135.	603	
CU	II	2881.8669	2881.0217	10		612		CO	II	2884.449	2883.603	M		825	
MN	II	2881.968	2881.122	80		328		F	II	2884.508	2883.662	1		538	
CR	I	2881.98	2881.14	12	60.	341		FE	II	2884.556	2883.711	8	230.	896	
NA	II	2881.983	2881.140	90	8.	693		FE	I	2884.55J3	2883.7475	8	167.	896	
ZN	III	2882.03	2881.19	10		162		O	I	2884.655	2883.809	100	30.0	210	
NI	II	2882.033	2881.188	5		835		NI	II	2884.657	2883.811	8		835	
NI	II	2882.100	2881.255	2	25.	835		P	III	2884.665	2883.819	150		936	
NE	I	2882.12	2881.28	1		1029		AS	II	2884.666	2883.820	0		425	
FE	V	2882.34	2881.50			229	F	MN	II	2884.671	2883.825	100	69.	328	
NI	II	2882.388	2881.543	15		835		O	I	2884.702	2883.855	200	30.0	210	
FE	I	2882.423	2881.578	12		896	M	ZN	III	2884.76	2883.92	5		162	
SI	I	2882.4244	2881.5792	1000	43.	608		NI	II	2884.832	2883.986	1		835	
CA	III	2882.627	2881.782	580	7.	64		CL	II	2884.867	2884.022	41		613	
FE	II	2882.645	2881.801	1	293.	488		V	II	2884.908	2884.064	6	197.	478	
NE	I	2882.696	2881.852	2		723		CO	I	2884.918	2884.074	1		603	
CR	II	2882.70	2881.86	55	302.	340		TI	II	2884.943	2884.099	70	14.	488	
CO	I	2882.719	2881.876	5	137.	603		MN	II	2885.009	2884.162	80	60.	328	
CR	II	2882.75	2881.91	45	206.	340		CU	II	2885.0415	2884.1955	275	164.	612	
MN	II	2882.89	2882.04	0		328		P	II	2885.08	2884.23	0		431	
ZN	II	2883.021	2882.177	50		154		P	III	2885.083	2884.237	4		936	
CO	I	2883.062	2882.219	30	141.	603		N	II	2885.092	2884.246	70	32.	200	
NI	II	2883.162	2882.317	50		835		FE	II	2885.115	2884.269	5	442.	896	
V	II	2883.337	2882.493	120	12.	478		SC	I	2885.14	2884.30	1		1030	M
FE	II	2883.351	2882.506	6	442.	896		MN	II	2885.154	2884.307	3		328	
FE	I	2883.480	2882.634	0		378		AS	II	2885.2520	2884.4060	340		425	
MN	II	2883.494	2882.648	5		328		N	II	2885.284	2884.439		32.	521	P
P	III	2883.540	2882.695	120		936		CR	II	2885.45	2884.61	1		340	
CR	I	2883.60	2882.76	3	55.	341		MN	II	2885.53	2884.68	5		328	
NI	II	2883.678	2882.832	2		835		N	II	2885.531	2884.685	20	32.	200	
F	III	2883.71	2882.86	12		537		P	II	2885.54	2884.70	0		431	
MN	I	2883.742	2882.899	20	5.	148		CR	III	2885.59	2884.74	5		490	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	II	2885.6022	2884.7562	2		612		CR	I	2887.49	2886.65	2	54.	341	
FE	II	2885.611	2884.765	5	399.	896		O	II	2887.51	2886.66			375	P
N	IV	2885.62	2884.77	70	21.	824		MN	II	2887.518	2886.671	220	60.	328	
V	II	2885.620	2884.776	150	12.	478		CO	I	2887.70	2886.86	2		603	
C	II	2885.654	2884.808	40	54.	287		S	II	2887.76	2886.90	100		285	
CR	I	2885.67	2884.83	4	74.	341		V	II	2887.811	2886.967	10	154.	478	
GA	II	2885.67	2884.83	1		652		CR	I	2887.840	2886.995	25	12.	341	
CR	II	2885.82	2884.98	2		340		CO	I	2887.99	2887.14	1		603	
SC	I	2885.93	2885.09	1		1030	M	BR	II	2888.002	2887.156	100		606	
MN	II	2885.979	2885.131	125	69.	328		V	II	2888.002	2887.158	8	154.	478	
HE	I	2886.	2885.	2		126		AS	II	2888.032	2887.186	30		425	
NI	II	2886.100	2885.253	8		835		P	III	2888.075	2887.228	40		936	
N	II	2886.119	2885.273	160	32.	200		FE	II	2888.157	2887.312	40	257.	488	
CR	II	2886.13	2885.29	10		340		FE	I	2888.2048	2887.3560	2	150.	896	
CO	I	2886.151	2885.307	3		603		SI	II	2888.205	2887.358	5	17.01	678	
F	II	2886.249	2885.403	4		538		CL	II	2888.248	2887.401	110		613	
CU	I	2886.252	2885.408	5		672		TI	II	2888.301	2887.456	2	14.	488	
MN	II	2886.30	2885.46	2		328		SI	II	2888.358	2887.511	10	17.01	678	
C	II	2886.315	2885.469	90	54.	287		AR	II	2888.378	2887.531	20		506	
ZN	III	2886.33	2885.49	5		162		F	III	2888.422	2887.575	600		537	
MN	II	2886.429	2885.583	10		328		ZN	II	2888.52	2887.67	50		154	
MN	II	2886.56	2885.71	2		328		V	I	2888.551	2887.707	2	5.	1000	
MN	II	2886.66	2885.82	0		328		V	II	2888.59	2887.75	1		478	
P	II	2886.729	2885.883	10		496		CR	II	2888.61	2887.77	20	302.	340	
O	II	2886.74	2885.90	4		168	M	CO	II	2888.65	2887.81	1		825	
FE	II	2886.779	2885.933	2	317.	896		FE	I	2888.6516	2887.8048	15	167.	896	
MN	II	2886.79	2885.95	2		328		MN	II	2888.735	2887.888	100	61.	328	
MN	II	2886.96	2886.11	0		328		O	II	2888.76	2887.91	25		168	M
F	III	2886.96	2886.12	1		537		FE	I	2888.8033	2887.9565	1	149.	896	
F	II	2886.963	2886.117	1		538		FE	II	2888.942	2888.095	4	215.	896	
SI	II	2886.989	2886.133	1	17.01	678		SE	II	2888.98	2888.14	1		468	
FE	II	2887.079	2886.234	40	229.	488		TI	III	2888.99	2888.14	3		227	
NA	II	2887.094	2886.249	40		693		V	II	2889.089	2888.244	80	82.	478	
FE	I	2887.1624	2886.3159	6	87.	896		MN	II	2889.090	2888.243	30		328	
MN	II	2887.18	2886.34	3		328		BR	II	2889.14	2888.29	1		606	
V	II	2887.213	2886.367	1		782		CO	III	2889.15	2888.31	10	27.	673	
CR	II	2887.22	2886.38	7	264.	340		SC	IV	2889.150	2888.304	1		720	
CO	I	2887.289	2886.444	50	1.	603		CR	II	2889.17	2888.33	2	160.	340	
GA	II	2887.30	2886.45	1		652		CR	I	2889.22	2888.38	7	13.	341	
CL	II	2887.48	2886.63	6		345		O	II	2889.26	2888.42			375	P

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NE	II	2889.261	2888.414	30		1016		GE	II	2891.30	2890.45	10		676	
MN	III	2889.36	2888.52	1		301		V	II	2891.398	2890.553	5	142.	478	
V	I	2889.368	2888.523	2	5.	1000		V	I	2891.41	2890.56	5		1000	
TI	II	2889.47	2888.62	10		488	N	TI	II	2891.44	2890.59	8		601	
CR	II	2889.58	2888.73	40	238.	340		MN	II	2891.500	2890.652	20		328	
FE	II	2889.582	2888.736	1	317.	488		CR	I	2891.583	2890.738	10	74.	341	
V	II	2889.62	2888.77	15		782		CU	I	2891.69	2890.84	50	56.	672	
MN	II	2889.662	2888.815	15	107.	328		FE	I	2891.7038	2890.8562	1	184.	896	
TI	II	2889.769	2888.923	15	5.	488		CO	II	2891.78	2890.93	1		825	
FE	II	2889.834	2888.988	5	229.	488		N	II	2891.894	*2891.046	40	32.	200	
CR	II	2890.03	2889.19	35	11.	340		TI	II	2891.896	2891.050	15	5.	468	
CR	I	2890.064	2889.219	10	12.	341		CR	II	2891.91	2891.06	25	240.	340	
CR	I	2890.133	2889.294	25		341		CR	II	2892.05	2891.20	20.	238.	340	
MN	II	2890.157	2889.312	0	107.	328		NI	II	2892.078	2891.231	3		835	
TI	IV	2890.21	2889.36	40		721		MN	II	2892.180	2891.332	140	69.	328	
MN	II	2890.27	2889.42	0	107.	328		CR	II	2892.25	2891.40	20	194.	340	
F	III	2890.297	2889.450	700		537		FE	I	2892.2512	2891.4035	1	89.	896	
CR	II	2890.35	2889.50	35	207.	340		CR	I	2892.27	2891.42	15	60.	341	
TI	III	2890.35	2889.50	7		227		V	I	2892.276	2891.430	2		1000	
MN	II	2890.367	2889.520	220	60.	328	H	NE	II	2892.313	2891.465	5		1016	
CO	II	2890.41	2889.56	M		825		N	II	2892.333	2891.486		32.	512	P
MN	II	2890.447	2889.600	220	60.	328	H	CU	II	2892.4565	2891.6088	1		612	
V	II	2890.459	2889.614	100	12.	478		AR	II	2892.4602	2891.6125	160	15.	867	
NI	II	2890.550	2889.703	3		835		V	II	2892.482	2891.636	150	12.	478	
CR	II	2890.67	2889.82	25	160.	340		MN	II	2892.489	2891.643	5		328	
CO	I	2890.691	2889.845	3		603		CU	I	2892.49	2891.64	30	58.	672	
FE	I	2890.711	2889.864	2		896	M	FE	I	2892.535	2891.688	3		896	
FE	I	2890.7482	2889.9008	4	149.	896		FE	I	2892.5546	2891.7068	3	183.	896	M
CO	II	2890.80	2889.95	8		825		MN	II	2892.61	2891.76	5		328	
FE	I	2890.8361	2889.9887	5	142.	896		CR	II	2892.72	2891.87	20	291.	340	
FE	III	2890.845	2890.000	25		188		FE	I	2892.753	2891.905	4		896	
P	II	2890.87	2890.02	1		496		MN	I	2892.791	2891.945	2		148	
AS	II	2890.9874	2890.1400	310		425		V	I	2892.823	2891.977	2		1000	
V	II	2890.989	2890.144	7	142.	478		N	VII	2892.9	2892.0			309	
S	III	2891.	2890.			107		BR	II	2892.926	2892.079	150		606	
CR	I	2891.00	2890.16	12	74.	341		FE	II	2893.062	2892.215		308.	488	
CR	I	2891.20	2890.35	1	13.	341		CO	I	2893.087	2892.242	25		603	
MN	I	2891.234	2890.388	1		148		FE	III	2893.164	2892.318	25		188	
FE	I	2891.261	2890.414	1		378		CO	II	2893.18	2892.34	M		825	
CO	II	2891.283	2890.436	20		825		MN	I	2893.235	2892.388	2	5.	148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2893.236	2892.389	220	61.	328		NE	IV	2895.4	2894.6	43		885	M
O	II	2893.27	2892.42	4		168	P	V	I	2895.430	2894.563	8	5.	1000	
V	II	2893.280	2892.434	150	12.	478		MN	I	2895.471	2894.625	10	20.	148	
FE	I	2893.3259	2892.4779	6	142.	896		FE	II	2895.627	2894.779	3	230.	896	
MN	I	2893.340	2892.493	5		148		CR	II	2895.66	2894.81	18	160.	340	
FE	III	2893.372	2892.524	20		288		V	II	2895.679	2894.833	3		478	
AS	II	2893.443	2892.595	10		425		MN	II	2895.751	2894.901	100	61.	328	
V	II	2893.496	2892.650	200	12.	478		AS	II	2895.855	2895.007	8		425	
MN	I	2893.503	2892.657	20	5.	148		CR	II	2895.87	2895.02	18	160.	340	
CR	II	2893.59	2892.74	18		340		FE	I	2895.8833	2895.0347	40	87.	896	
TI	I	2893.62	2892.77	30		488	N	FE	II	2895.919	2895.071	40	257.	488	
MN	II	2893.629	2892.781	10		328		FE	III	2895.922	2895.076	150	125.	188	
FE	II	2893.669	2892.822	40	61.	488		V	II	2895.943	2895.100	10		782	
N	II	2893.716	2892.868	70	31.	200		SI	IV	2895.980	2895.131	90	34.	767	
BR	II	2893.766	2892.919	50		606		V	I	2896.01	2895.16	4		1000	
O	II	2893.77	2892.92	10		168	P	MN	I	2896.035	2895.188	8	20.	148	
CR	II	2893.80	2892.95	20	160.	340		FE	II	2896.069	2895.220	4	294.	896	
MG	III	2894.07	2893.22	7		2		P	III	2896.089	2895.241	250		936	
MN	III	2894.08	2893.23	1		301		FE	II	2896.179	2895.331	1	435.	488	
CR	I	2894.102	2893.254	30	12.	341		CO	I	2896.181	2895.335	4		603	
V	II	2894.160	2893.314	230	12.	478		CO	II	2896.19	2895.34	M		825	
BR	II	2894.270	2893.423	600		606		FE	III	2896.310	2895.464	25		188	
V	I	2894.32	2893.47	4	66.	1000		F	III	2896.320	2895.471	375		537	
CR	II	2894.35	2893.50	4	160.	340		CO	I	2896.331	2895.485	20		603	
NA	I	2894.466	2893.618	4		1019		CR	I	2896.35	2895.50	2		341	
GA	II	2894.50	2893.65	F		652		V	II	2896.455	2895.609	4	167.	478	
FE	I	2894.6110	2893.7627	8	43.	896		CR	II	2896.51	2895.66	5	160.	340	
FE	III	2894.638	2893.792	60		188		CR	I	2896.521	2895.675	7	74.	341	
MN	II	2894.689	2893.840	40		328		TI	II	2896.66	2895.81	M		601	
FE	I	2894.7290	2893.8607	8	88.	896		SE	II	2896.73	2895.88	350	18.	468	
N	II	2894.737	2893.889	5	31.	200		CO	I	2896.738	2895.891	3		603	
NA	II	2894.793	2893.945	90	16.	693		CR	I	2896.911	2896.064	6	74.	341	
AR	II	2894.833	2893.985	10		506		V	II	2897.045	2896.198	100	11.	478	
FE	II	2894.905	2894.058	20	293.	488		CR	II	2897.16	2896.31	30	159.	340	
N	II	2894.949	2894.101		31.	521	P	FE	III	2897.182	2896.333	5		268	
CR	I	2895.014	2894.168	20	12.	341		N	VI	2897.2	2896.4			97	
AL	I	2895.077	2894.228	15		198		CR	II	2897.30	2896.45	40	159.	340	
CR	II	2895.09	2894.24	25	288.	340		AR	II	2897.4092	2896.5602	20		867	
CR	II	2895.25	2894.40	10	160.	340		FE	I	2897.444	2896.595	0		378	
FE	I	2895.3523	2894.5038	50	134.	896		NI	II	2897.453	2896.604	3		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
NI	II	2897.490	2896.641	1		835		MN	II	2899.18	2898.33	5	107.	328	
S	III	2897.56	2896.71	0	15.	323		FE	I	2899.200	2898.351	8		896	M
CR	II	2897.59	2896.74	35	97.	340		MN	II	2899.379	2898.531	1	107.	328	
AR	II	2897.5954	2896.7463	100	.	867		CR	II	2899.38	2898.53	50	95.	340	
CR	I	2897.602	2896.756	25	12.	341		MN	II	2899.551	2898.702	220	61.	328	
CU	I	2897.68	2896.83	0		672		AS	I	2899.56	2898.71	50	16.	480	
V	II	2897.717	2896.870	2		478		O	III	2899.58	2898.74	4		168	P
NE	II	2897.852	2897.003	20		1016		FE	II	2899.587	2898.738	5	352.	488	
MN	II	2897.917	2897.068	140	50.	328		P	II	2899.594	2898.745	10		496	
F	II	2897.967	2897.118	1		538		FE	III	2899.61	2898.77	25		168	
CR	I	2897.99	2897.14	2		341		CO	II	2899.62	2898.77	3		825	
NE	II	2898.049	2897.200	50	.	563		V	I	2899.669	2898.822	5	4.	1000	
CU	II	2898.0698	2897.2207	15.		612		FE	I	2899.7068	2898.8573	1		896	
CR	II	2898.09	2897.24	10	287.	340		N	II	2899.724	2898.875		31.	521	P
FE	II	2898.115	2897.266	5	254.	896		MN	II	2899.810	2898.960	40		328	
AR	II	2898.181	2897.332	60	.	506		N	II	2899.936	2899.086	5	31.	200	
MN	I	2898.275	2897.428	5	20.	148		CR	II	2900.00	2899.15	25	240.	340	
N	II	2898.352	2897.503	70	31.	200		V	II	2900.014	2899.165	50		782	
O	II	2898.38	2897.53	4		168		CR	I	2900.050	2899.203	22	12.	341	
FE	I	2898.486	2897.637	2	142.	896		V	I	2900.055	2899.207	20	5.	1000	
MN	I	2898.498	2897.651	1		148		FE	I	2900.107	2899.258	2		896	M
CR	II	2898.52	2897.67	30	212.	340		SE	III	2900.12	2899.27	10		587	
NE	II	2898.523	2897.674	80	.	1016		FE	II	2900.133	2899.284	5	435.	488	
CR	II	2898.58	2897.73	20	159.	340		NI	III	2900.173	2899.327	10		661	
FE	II	2898.592	2897.744	20	323.	488		FE	III	2900.233	2899.386	40	125.	188	
MN	I	2898.644	2897.797	15	20.	148		FE	I	2900.2649	2899.4152	25	133.	896	
CR	II	2898.67	2897.82	10	159.	340		CR	II	2900.33	2899.48	35	159.	340	
N	II	2898.697	2897.849		31.	521	P	V	IV	2900.425	2899.575	2		829	
V	II	2898.746	2897.899	20	197.	478		V	I	2900.451	2899.602	30	5.	1000	
CO	II	2898.78	2897.93	7		825		CU	I	2900.48	2899.63	1		672	
NE	IV	2898.8	2898.0	30		885		CR	I	2900.53	2899.68	10	87.	341	
FE	II	2898.831	2897.983	5	435.	488	M	CO	I	2900.58	2899.73	4		603	
MN	I	2898.837	2897.990	10	20.	148		CA	III	2900.635	2899.785	700	7.	64	
NI	II	2898.899	2898.050	5		835		CO	I	2900.667	2899.819	25		603	
CU	I	2898.90	2898.05	0		672		V	II	2900.784	2899.936	4	119.	478	
BE	I	2898.976	2898.127	7		333		BR	II	2900.813	2899.964	350		606	
BE	I	2899.037	2898.188	3		333		BR	II	2900.921	2900.072	20	11.	488	
NI	II	2899.083	2898.234	1		835		MN	II	2901.004	2900.154	170	69.	325	
CR	I	2899.09	2898.24	4		341		BR	II	2901.068	2900.218	250		606	
BE	I	2899.103	2898.254	15		333		CR	I	2901.10	2900.25	12	13.	341	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
O	II	2901.16	2900.31	1		168		FE	III	2903.32	2902.47	200		188	
MN	II	2901.19	2900.34	5		328		V	II	2903.39	2902.54	1		478	
CR	II	2901.35	2900.50	4		340		CR	II	2903.45	2902.60	7	275.	340	
FE	III	2901.385	2900.535	40		288		CO	II	2903.60	2902.75	5		825	
MN	I	2901.393	2900.545	20	20.	148		CR	II	2903.71	2902.86	10	291.	340	
LI	III	2901.521	2900.672			309		P	III	2903.733	2902.882	1		936	
V	I	2901.71	2900.86	5		1000		MN	II	2903.751	2902.901	100	50.	328	
NI	II	2901.712	2900.862	50		835		MG	I	2903.773	2902.923	3	4.	1017	
MN	II	2901.740	2900.890	20		328		V	II	2903.917	2903.068	100	11.	478	
BR	III	2901.84	2900.99	85		586		CO	I	2904.046	2903.197	25	130.	603	
CR	II	2901.85	2901.00	12	97.	340		AL	II	2904.07	2903.22	5	13.	488	
NE	II	2901.959	2901.109	10		563		C	I	2904.11	2903.26	E	66.	821	U
NA	II	2901.964	2901.135	40		693		CR	I	2904.21	2903.36	4.		341	
CU	I	2902.02	2901.18	1		672		V	II	2904.397	2903.548	3	119.	478	
CR	III	2902.10	2901.25	20		490		CR	II	2904.43	2903.58	15		340	
FE	I	2902.2303	2901.3802	15	89.	896		V	I	2904.549	2903.700	12	4.	1000	
FE	III	2902.26	2901.41	5		288		AL	II	2904.568	2903.718	2	13.	488	
BR	III	2902.27	2901.42	120		586		P	III	2904.699	2903.849	1		936	
CO	I	2902.38	2901.53	1		603		AS	II	2904.807	2903.955	10		425	
CR	III	2902.40	2901.55	20		490		CR	II	2904.82	2903.97	20	97.	340	
C	IV	2902.45	2901.60	25	19.	35		MN	II	2904.856	2904.005	0		328	
CR	I	2902.50	2901.65	5		341		BR	II	2904.861	2904.010	1		606	
FE	I	2902.761	2901.910	25	142.	896		NI	III	2904.925	2904.072	2		661	
TI	II	2902.79	2901.94	0		601		FE	I	2904.938	2904.087	2		896	M
NE	IV	2902.8	2902.0	38		885	M	BR	II	2904.950	2904.100	100		606	
CR	I	2902.83	2901.98	4	74.	341		V	I	2904.975	2904.126	20	5.	1000	
FE	II	2902.906	2902.056	5	293.	488		FE	XII	2905.0	2904.1			726	FH
MN	II	2902.91	2902.06	20		328		FE	I	2905.011	2904.160	5		896	M
AS	II	2902.951	2902.100	15		425		SI	II	2905.134	2904.283	300	17.	678	
AL	II	2902.99	2902.14	10	13.	488		CO	I	2905.139	2904.290	2		603	
F	III	2903.05	2902.20	4		537		O	II	2905.14	2904.29	10		168	M
MN	I	2903.052	2902.203	25	5.	148		S	III	2905.16	2904.31	300	15.	323	
AL	I	2903.108	2902.258	15		198		N	II	2905.208	2904.357	5	31.	200	
C	I	2903.15	2902.30	E	66.	821	U	FE	III	2905.279	2904.431	350	125.	188	
ZN	II	2903.15	2902.30	100		154		CU	I	2905.31	2904.46	0		672	
FE	II	2903.167	2902.317	40	257.	488		SI	IV	2905.321	2904.470	40	36.	767	
MN	I	2903.247	2902.399	5	20.	148		MN	II	2905.366	2904.515	20		328	
CR	I	2903.29	2902.44	4	13.	341		FE	I	2905.373	2904.522	0		378	
CL	II	2903.30	2902.45	8		345		FE	II	2905.424	2904.574	1	435.	488	
FE	II	2903.309	2902.459	110	278.	488		F	II	2905.500	2904.649	25		538	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2905.516	2904.665	40		328		FE	II	2906.271	2906.120	70	215.	488	
CR	I	2905.522	2904.674	12	87.	341		V	I	2906.984	2906.134	40	5.	1000	
N	II	2905.563	2904.713		31.	521	P	O	VIII	2907.0	2906.1			309	
NI	V	2905.6	2904.7			922	F P	CR	II	2907.02	2906.17	10	227.	340	
AR	II	2905.686	2904.835	J		506		MN	II	2907.02	2906.17	3		328	
NA	II	2905.763	2904.912	120	7.	693		CL	II	2907.068	2906.217	130	14.	613	
C	I	2905.80	2904.95	E	66.	821	U	BE	IV	2907.074	2906.223			309	
V	II	2905.834	2904.985	15	119.	478		C	IV	2907.14	2906.29	170	20.	35	
O	II	2905.85	2905.00	10		168		CO	II	2907.14	2906.29	1		825	
SE	II	2905.92	2905.07	50		468		MN	I	2907.189	2906.340	4		148	
CO	II	2905.96	2905.11	4		825		CR	III	2907.19	2906.34	20		490	
CO	I	2905.981	2905.132	3		603		MG	I	2907.212	2906.360	7	4.	1017	
FE	II	2906.036	2905.185	5	255.	488		FE	I	2907.207	2906.416	5		896	M
MN	II	2906.104	2905.253	40		328		F	II	2907.275	2906.424	4		538	
F	III	2906.152	2905.301	450		537		V	II	2907.297	2906.448	150	11.	478	
V	II	2906.156	2905.307	1		478		SC	IV	2907.387	2906.536	220		720	
SC	IV	2906.159	2905.308	5		720		MN	II	2907.415	2906.564	3		328	
MG	III	2906.27	2905.42	3		2		O	II	2907.42	2906.57	25		168	P
P	II	2906.28	2905.43	0		431		AS	II	2907.436	2906.584	1		425	
CR	I	2906.325	2905.477	25	12.	341		NE	II	2907.443	2906.592	80		1016	
CO	I	2906.345	2905.496	1		603		TI	II	2907.54	2906.69	20		601	
AS	II	2906.390	2905.539	5		425		FE	I	2907.592	2906.741	0	150.	378	
CR	II	2906.42	2905.57	3	238.	340		CR	II	2907.61	2906.76	2	57.	340	
FE	I	2906.42	2905.57	1	182.	605		NE	II	2907.6682	2906.8167	80		389	
CO	I	2906.425	2905.576	1		603		CO	II	2907.81	2906.96	4		825	
V	II	2906.458	2905.609	15	119.	478		AL	III	2907.822	2906.930	450		826	
TI	I	2906.500	2905.649	50		488	N	MN	II	2907.847	2906.994	15		328	
CU	I	2906.510	2905.662	5		672		CR	II	2907.85	2907.00	4	315.	340	
F	III	2906.54	2905.69	4		537		AR	II	2907.89	2907.04	0		506	
SI	II	2906.543	2905.692	500	17.	678		SE	III	2907.91	2907.06	100		14	
C	II	2906.566	2905.715	10	41.	287		C	II	2907.940	2907.090	4	41.	287	
FE	II	2906.595	2905.744	2	435.	896		CO	II	2907.95	2907.10	6		825	
NI	I	2906.597	2905.746	5	74.	488		CR	I	2907.960	2907.111	5		341	
FE	III	2906.65	2905.80	150	148.	188		MN	II	2908.06	2907.21	3		328	
MN	I	2906.674	2905.825	1		148		MN	I	2908.063	2907.214	40	20.	148	
NE	III	2906.70	2905.85	80		1031	M	V	II	2908.307	2907.457	120	10.	478	
BR	II	2906.722	2905.871	100		606		NI	I	2908.308	2907.457	15	2.	488	
N	II	2906.807	2905.956		31.	521	P	BR	II	2908.326	2907.475	1		606	
NI	II	2906.815	2905.963	2		835		FE	III	2908.346	2907.497	250	10.	188	
C	II	2906.862	2906.011	10	41.	287		FE	I	2908.3687	2907.5170	20	167.	896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	II	2908.395	2907.543	8		835		V	II	2910.857	2910.007	140	11.	478	
NI	II	2908.494	2907.642	8		835		NE	II	2910.9133	2910.0609	90		389	
CO	I	2908.520	2907.670	1		603		B	III	2910.940	2910.090	10		531	
FE	III	2908.550	2907.701	350	125.	188		CO	II	2911.06	2910.21	5		825	
CR	I	2908.554	2907.704	4	87.	341		MN	I	2911.092	2910.242	3		148	
F	III	2908.63	2907.77	12		537		CR	I	2911.102	2910.252	3		341	
FE	II	2908.704	2907.853	40	60.	488		CO	I	2911.16	2910.31	1		603	
CU	II	2908.7681	2907.9163	10		612		P	III	2911.217	2910.365	40		936	
CA	III	2908.769	2907.918	200		64		V	II	2911.230	2910.380	150	11.	478	
MN	I	2908.843	2907.993	15	5.	148		NE	II	2911.2599	2910.4075	90		389	
TI	II	2908.99	2908.14	4		488	N	V	I	2911.285	2910.435	5	4.	1000	
NI	II	2909.000	2908.148	3		835		MN	III	2911.436	2910.584	10		301	
NI	II	2909.080	2908.228	1		835		AS	II	2911.460	2910.607	100		425	
CR	II	2909.14	2908.29	10	97.	340		BR	III	2911.49	2910.64	50		586	
P	II	2909.186	2908.334	10		496		CR	II	2911.49	2910.64	30	211.	340	
BR	II	2909.259	2908.408	0		606		P	III	2911.495	2910.643	1		936	
V	II	2909.29	2908.44	20	154.	478		FE	II	2911.576	2910.724	20	435.	488	
NI	II	2909.295	2908.443	3		835		C	II	2911.581	2910.729	25	41.	287	
NI	II	2909.451	2908.599	3		835		TI	II	2911.61	2910.76	0	27.	488	
FE	III	2909.500	2908.651	60	125	188		FE	II	2911.613	2910.761	40	278.	488	
O	II	2909.60	2908.75	4		168	P	GA	II	2911.62	2910.77	30		652	
V	II	2909.660	2908.810	260	12.	478		BR	II	2911.632	2910.780	150		606	
CR	III	2909.68	2908.83	20		490		CR	I	2911.732	2910.892	25	12.	341	
CO	II	2909.70	2908.85	2		825		FE	I	2911.7785	2910.9260	3	168.	896	
FE	I	2909.7081	2908.8561	8	142.	896		MN	III	2911.87	2911.02	1		301	
CU	II	2909.715	2908.863	1		612		V	II	2911.901	2911.050	160	10.	478	
MN	I	2909.728	2908.878	10	20.	148		AS	II	2911.9095	2911.0569	100		425	
C	II	2909.809	2908.957	10	41.	287		O	II	2911.98	2911.13	10		168	P
CR	I	2909.898	2909.049	30	12.	341		NE	II	2911.991	2911.138	80		563	
NI	II	2909.979	2909.127	3		835		CR	I	2911.998	2911.148	22	12.	341	
CR	II	2909.98	2909.13	2	315.	340		CU	I	2912.065	2911.215	30	56.	672	
FE	I	2910.1678	2909.3157	2	149.	896		NE	I	2912.313	2911.461	25		723	
NI	II	2910.180	2909.328	5		835		CO	I	2912.410	2911.560	5		603	
SI	V	2910.23	2909.38	100		941		V	II	2912.505	2911.654	7	119.	478	
TI	II	2910.30	2909.45	1		601		CR	II	2912.54	2911.69	35	212.	340	
FE	I	2910.351	2909.499	5		896	M	F	III	2912.63	2911.78	4		537	
MN	I	2910.480	2909.630	1		148		O	II	2912.65	2911.80	10		168	P
TI	II	2910.764	2909.912	7	1.	488		FE	II	2912.676	2911.823	5	441.	488	
FE	II	2910.820	2909.968	5	256.	488		MN	I	2912.690	2911.839	1		148	
CO	I	2910.834	2909.984	4		603		NE	II	2912.719	2911.866	30		1016	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AS	II	2912.720	2911.867	20		425		FE	I	2915.1572	2914.3038	6		896	
P	III	2912.740	2911.888	25		936		CR	II	2915.23	2914.38	2		290.	
CO	I	2912.820	2911.970	5		603		V	I	2915.28	2914.43	2		1000	
MN	I	2912.851	2912.000	2		148		P	II	2915.287	2914.433	5		496	
CL	II	2912.902	2912.050	200		613		MN	I	2915.450	2914.599	240	10.	148	
TI	I	2912.925	2912.072	400	23.	488		CO	I	2915.460	2914.608	7	141.	603	
FE	I	2913.0103	2912.1574	110	1.	896		NI	II	2915.549	2914.695	15		835	
MN	I	2913.076	2912.226	3		148		B	III	2915.560	2914.710	10		531	
FE	I	2913.1095	2912.2566	1	86.	896		V	II	2915.72	2914.87	10	81.	478	
V	II	2913.304	2912.451	20		782		TI	II	2915.74	2914.89	10		488	N
CU	II	2913.306	2912.453	2		612		V	I	2915.774	2914.924	50	5.	1000	
CR	II	2913.38	2912.53	1	97.	340		AR	II	2915.785	2914.932	10		506	
MN	II	2913.65	2912.80	0		328		MN	II	2915.803	2914.953	2	112.	328	
P	II	2913.726	2912.872	10		496		NE	II	2915.976	2915.122	80		1016	
CU	I	2913.766	2912.916	2		672		C	VI	2916.04	2915.19			309	
SC	II	2913.89	2913.04	3		1028		CR	II	2916.07	2915.22	10	227.	340	
V	II	2913.89	2913.04	3		478		CO	III	2916.12	2915.26	5	27.	673	
TI	II	2913.93	2913.08	1	1.	488		CR	II	2916.13	2915.28	15	239.	340	
MN	II	2913.98	2913.13	60		328		LI	III	2916.170	2915.316			309	
NE	I	2914.027	2913.174	60	12.	896		V	I	2916.18	2915.33	10	4.	1000	
AL	I	2914.120	2913.267	7		198		V	II	2916.181	2915.330	30	166.	478	
F	III	2914.138	2913.285	600		537		CO	II	2916.21	2915.44	2		825	
BR	II	2914.175	2913.322	100		606		MG	I	2916.306	2915.453	5	15.	1017	
TI	II	2914.19	2913.34	10		488	N	MN	II	2916.306	2915.454	3	112.	328	
NE	I	2914.270	2913.417	2		723		CR	II	2916.31	2915.46	30	263.	340	
MN	II	2914.330	2913.481	15		328		NI	II	2916.333	2915.479	3		835	
MN	III	2914.336	2913.483	1		301		CL	II	2916.374	2915.520	91		613	
CR	II	2914.35	2913.50	10		340		O	II	2916.39	2915.54	4		168	P
AS	II	2914.362	2913.508	2		425		AR	II	2916.447	2915.593	40		506	
MN	I	2914.369	2913.518	1		148		NI	II	2916.499	2915.646	8		835	
NI	II	2914.443	2913.590	100	26.	835		V	II	2916.727	2915.875	40	197.	478	
MG	III	2914.51	2913.66	3		2		AR	II	2916.821	2915.967	10		506	
CR	I	2914.567	2913.716	20	87.	341		FE	III	2916.831	2915.980	10	10.	188	
V	II	2914.567	2913.716	2	119.	478		V	I	2916.85	2916.00	8	83.	1000	
MN	II	2914.578	2913.724	30	111.	328		CO	I	2916.892	2916.041	1		603	
NI	I	2914.859	2914.006	10	1.	488		CR	II	2916.92	2916.07	10	207.	340	
FE	I	2915.050	2914.197	3		896	M	TI	II	2916.94	2916.09	10		488	
CR	I	2915.075	2914.224	3		341		MN	II	2917.002	2916.150	4	112.	328	
V	II	2915.149	2914.288	40	118.	478		FE	II	2917.004	2916.150	20	60.	488	
V	I	2915.150	2914.299	2		1000		CR	I	2917.01	2916.16	12	13.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NE	II	2917.064	2916.210	40		1016		V	II	2919.06	2918.21	15	204.	478	
O	IV	2917.15	2916.30	200		86		CR	I	2919.09	2918.24	4		341	
F	III	2917.198	2916.344	800		537		CR	II	2919.14	2918.29	3	179.	340	
MN	I	2917.227	2916.375	1		148		FE	I	2919.2068	2918.3525	10	134.	896	
ZN	II	2917.40	2916.55	20		154		CO	II	2919.224	2918.370	4		825	
CR	III	2917.43	2916.57	40		490		CO	II	2919.26	2918.41	12		825	
CO	II	2917.45	2916.60	0		825		P	II	2919.313	2918.459	20		496	
CR	I	2917.55	2916.70	2		341		FE	II	2919.383	2918.528	3	435.	896	
TI	II	2917.55	2916.70	1		601		MN	II	2919.430	2918.576	10		328	
NI	I	2917.70	2916.85	5		602		P	III	2919.492	2918.637	4		936	
FE	II	2917.784	2916.933	20	229.	488		SC	IV	2919.562	2918.710	220		720	
CR	II	2917.79	2916.94	2	315.	340		CR	I	2919.57	2918.72	1	13.	341	
CR	III	2917.87	2917.02	3		490		NE	II	2919.613	2918.758	60		1016	
AS	II	2917.875	2917.021	190		425		TI	II	2919.62	2918.77	2	30.	488	
CR	I	2917.92	2917.07	4		341		AS	I	2919.67	2918.82	2	15.	480	
MN	II	2917.923	2917.071	4	112.	328		FE	I	2919.671	2918.816	4		896	M
FE	II	2917.938	2917.087	70	336.	488		CR	II	2919.78	2918.93	1	315.	340	
CO	I	2917.97	2917.12	1		603		NI	II	2919.788	2918.934	3		835	
CO	II	2918.02	2917.17	7		825		NA	II	2919.900	2919.048	60		693	
V	II	2918.082	2917.230	7	81	478		NI	II	2919.907	2919.052	75		835	
BR	II	2918.084	2917.233	600		606		MN	I	2919.974	2919.122	8	19.	148	
AS	II	2918.211	2917.357	125		425		FE	I	2920.069	2919.214	4		896	M
V	II	2918.217	2917.365	50	11.	478		MN	II	2920.180	2919.324	5		328	
CR	II	2918.25	2917.40	1		340		MG	III	2920.20	2919.35	3		2	
FE	II	2918.316	2917.465	70	61.	488		CR	I	2920.24	2919.39	2	87.	341	
CR	I	2918.35	2917.50	3		341		CO	I	2920.405	2919.552	30	134.	603	
NA	II	2918.368	2917.516	60	5.	693		P	IV	2920.497	2919.642	40		937	
V	I	2918.37	2917.52	4		1000		V	II	2920.511	2919.656	20		782	
NI	I	2918.38	2917.53	5		602		AS	II	2920.584	2919.729	1		425	
NI	II	2918.415	2917.561	8		835		CR	I	2920.59	2919.74	1	87.	341	
MN	I	2918.489	2917.637	1		148		FE	I	2920.695	2919.840	8	142.	896	
N	II	2918.588	2917.734	5	39.	200		NA	II	2920.698	2919.846	10		693	
CU	II	2918.6305	2917.7763	5		612		P	III	2920.718	2919.863	1		936	
FE	II	2918.728	2917.876	1		645		CR	II	2920.78	2919.93	2	274.	340	
V	I	2918.79	2917.94	8	83.	1000		V	I	2920.783	2919.931	6	3.	1000	
BE	IV	2918.809	2917.955			309		NI	II	2920.822	2919.967	10		835	
N	II	2918.831	2917.979		39.	521	P	V	II	2920.841	2919.989	50	11.	478	
SC	IV	2918.873	2918.021	160		720		FE	I	2921.14	2920.29	1	136.	605	
FE	I	2918.878	2918.024	40	182.	896		CU	I	2921.149	2920.296	10	60.	672	
B	II	2918.930	2918.076	350		532		V	II	2921.230	2920.377	100	10.	478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	I	2921.311	2920.458	8		148		V	I	2923.568	2922.715	5	101.	1000	
F	III	2921.373	2920.518	375		537		CO	II	2923.57	2922.71	0		825	
MN	I	2921.452	2920.599	5		148		MN	II	2923.63	2922.78	0		328	
FE	I	2921.5449	2920.6900	4	87.	896		CU	I	2923.683	2922.830	10	58.	672	
P	III	2921.550	2920.695	4		936		GE	III	2923.71	2922.86	3		406	
TI	II	2921.64	2920.79	0		601		TI	I	2923.77	2922.92	20	22.	488	
CR	II	2921.75	2920.90	4		340		NE	II	2923.855	2923.000	10		1016	
F	III	2921.763	2920.908	300		537		P	III	2923.876	2923.020	10		936	
NA	II	2921.793	2920.941	40		693		N	II	2923.906	2923.050	5	39.	200	
FE	I	2921.837	2920.981	4		896	M	MN	I	2923.998	2923.145	2	19.	148	
CR	I	2921.90	2921.05	1		341		FE	I	2924.020	2923.164	5		896	M
CR	II	2921.95	2921.10	5		340		CU	I	2924.066	2923.212	20		672	
P	II	2921.96	2921.10	0		431		MN	I	2924.083	2923.229	2		148	
MN	I	2921.965	2921.112	1		148		CU	II	2924.113	2923.257	2		612	
P	IV	2921.972	2921.117	4		937		FE	I	2924.142	2923.286	20	182.	896	
V	I	2922.03	2921.18	6	101.	1000		V	II	2924.194	2923.340	20	81.	478	
CR	II	2922.08	2921.23	50	286.	340		V	I	2924.26	2923.41	2		1000	
MN	II	2922.154	2921.299	40	50.	328		FE	I	2924.286	2923.430	12		896	M
CR	I	2922.20	2921.35	8	98.	341		CR	II	2924.31	2923.46	30	286.	340	
O	IV	2922.31	2921.45	250		86		NA	II	2924.327	2923.474	25		693	
NE	II	2922.469	2921.614	20		1016		MN	I	2924.431	2923.577	3		148	
CR	II	2922.66	2921.81	40	95.	340		MN	II	2924.48	2923.63	0		328	
SE	III	2922.68	2921.83	30		587		V	I	2924.480	2923.627	70	5.	1000	
BR	II	2922.727	2921.874	180	9.	488		TI	II	2924.50	2923.65	M		601	
AS	II	2922.762	2921.907	100		425		CR	II	2924.52	2923.67	40	286.	340	
BR	II	2922.778	2921.926	100		606		CU	I	2924.557	2923.704	80	62.	672	
MN	III	2922.784	2921.924	2		301		MN	I	2924.568	2923.715	10	19.	148	
NE	II	2922.821	2921.966	40		1016		CR	II	2924.65	2923.80	8	114.	340	
FE	II	2922.876	2922.023	110	293.	488		FE	I	2924.7085	2923.8528	30	166.	896	
CR	I	2922.97	2922.12	4		341		P	III	2924.709	2923.853	25		936	
SC	IV	2923.048	2922.195	1		720		MN	II	2924.72	2923.87	1		328	
FE	I	2923.067	2922.211	2		896	M	FE	III	2924.755	2923.902	150	102.	188	
FE	I	2923.236	2922.383	1	86.	605		FE	I	2924.857	2924.002	0	166.	378	
CO	II	2923.28	2922.40	0		825		TI	II	2924.86	2924.01	8		601	
CR	II	2923.31	2922.46	5	256.	340		V	II	2924.870	2924.017	260	10.	478	
FE	III	2923.322	2922.467	5		288		FE	II	2925.013	2924.160	5	351.	488	
V	I	2923.435	2922.582	4	3.	1000		CA	III	2925.182	2924.326	580	11.	64	
MN	II	2923.449	2922.594	100		328		MN	I	2925.284	2924.430	10	19.	148	
FE	I	2923.479	2922.623	6	122.	896		P	III	2925.358	2924.502	40		936	
N	II	2923.56	2922.70	5	39.	200		FE	I	2925.46	2924.59	1	121.	605	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	I	2925.483	2924.629	2	19.	148		NI	II	2927.657	2926.800	2		835	
V	II	2925.486	2924.633	230	10.	478		BR	III	2927.71	2926.86	350		586	
AR	II	2925.498	2924.642	100	.	506		CR	II	2927.94	2927.09	50	256.	340	
CO	II	2925.60	2924.75	6		825		MN	II	2928.088	2927.230	40	50.	328	
CR	II	2925.71	2924.86	2	194.	340		V	V	2928.1	2927.2			115	
CU	I	2925.735	2924.882	10	61.	672		CU	II	2928.1106	2927.2540	30		612	
V	I	2925.77	2924.92	5	101.	1000		P	III	2928.145	2927.289	10		936	
CR	I	2925.88	2925.03	4		341		MN	II	2928.252	2927.395	100	50.	328	
MN	III	2926.056	2925.200	3		301		CU	II	2928.356	2927.500	3		612	
CR	II	2926.07	2925.22	3	158.	340		FE	I	2928.40	2927.55	3		605	N
V	II	2926.142	2925.288	15	81.	478		MN	II	2928.451	2927.596	20		328	
FE	I	2926.2139	2925.3578	12	167.	896		V	I	2928.500	2927.646	10	101.	1000	
CU	I	2926.253	2925.439	30	59.	672		MN	II	2928.510	2927.652	20		328	
V	II	2926.36	2925.51	3		478		CO	I	2928.522	2927.667	50	136.	603	
CR	I	2926.40	2925.55	5		341		P	III	2928.547	2927.690	10		936	
MN	I	2926.43	2925.58	220	10.	148		P	IV	2928.547	2927.690	25		937	
NE	II	2926.4744	2925.6182	80		389		CR	I	2928.62	2927.77	1		341	
BR	II	2926.509	2925.655	120	10.	488		NE	II	2928.650	2927.794	30		1016	
BR	II	2926.543	2925.689	100		606		TI	II	2928.72	2927.87	2		601	
MN	XI	2926.6	2925.7			726	F	CO	I	2928.825	2927.970	4		603	
FE	I	2926.641	2925.785	10		896	M	FE	I	2928.960	2928.103	3	121.	896	
AS	II	2926.689	2925.833	2		425		CR	II	2928.97	2928.12	40	55.	340	
MN	II	2926.73	2925.88	50		328		AS	II	2928.976	2928.119	20		425	
V	I	2926.734	2925.880	4	3.	1000		CU	II	2929.048	2928.192	2		612	
CR	II	2926.75	2925.90	3	158.	340		MN	II	2929.117	2928.260	10		328	
FE	I	2926.7558	2925.8996	10	89.	896		SC	I	2929.13	2928.28	1		1030	M
CU	I	2926.907	2926.057	10	37.	672		F	III	2929.167	2928.310	12		537	
CR	II	2927.00	2926.15	18	95.	340		CR	II	2929.17	2928.32	50	256.	340	
O	IV	2927.03	2926.17	90		86		TI	I	2929.175	2928.320	300	34.	488	
CU	II	2927.1063	2926.2500	2		612		MG	V	2929.2	2928.3			108	F
V	I	2927.112	2926.258	12	4.	1000		FE	II	2929.385	2928.530	0		645	
AS	III	2927.17	2926.32	110		404		CO	II	2929.450	2928.593	10		825	
V	II	2927.20	2926.35	10	204.	478		V	I	2929.47	2928.62	2		1000	
V	II	2927.295	2926.442	40	177.	478		MG	II	2929.490	2928.635	80	2.	831	
FE	I	2927.410	2926.553	2		896	M	N	II	2929.512	2928.655	40	38.	200	
MN	II	2927.419	2926.563	50		328		MN	I	2929.532	2928.678	40	17.	148	
FE	II	2927.443	2926.586	10	60.	896	H	TI	II	2929.54	2928.69	15		601	
FE	I	2927.471	2926.614	4		896	M	V	I	2929.59	2928.74	1		1000	
MN	III	2927.590	2926.734	7		301		FE	I	2929.6076	2928.7507	3	131.	896	
TI	II	2927.60	2926.75	10	27.	488		CO	I	2929.666	2928.812	50		603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	2929.8642	2929.0072	110	1.	896		NI	II	2932.480	2931.622	10		835	
V	II	2929.871	2929.017	4	204.	478		CU	I	2932.553	2931.699	10	36.	672	
FE	I	2929.966	2929.109	15	182.	896		CO	II	2932.56	2931.70	2		825	
CR	II	2930.03	2929.18	2	193.	340		CU	II	2932.647	2931.789	2		612	
FE	I	2930.096	2929.239	4		896	M	FE	I	2932.6629	2931.8052	3	166.	896	
NE	I	2930.167	2929.312	15		723		CR	I	2932.71	2931.85	1		341	
CO	II	2930.193	2929.336	M		825		V	II	2932.715	2931.859	10	118.	478	
SC	II	2930.23	2929.38	4		1028		MN	II	2932.73	2931.87	3		328	
CR	II	2930.29	2929.44	18	239.	340		NE	II	2932.961	2932.103	80		1016	
CR	I	2930.34	2929.48	4		341		NE	II	2933.053	2932.195	50		1016	
CO	I	2930.360	2929.505	75	129.	603		CU	II	2933.0831	2932.2253	10		612	
FE	I	2930.4751	2929.6180	6	87.	896		V	II	2933.178	2932.323	60	166.	478	
CR	II	2930.63	2929.78	4	206.	340		FE	III	2933.152	2932.337	60		188	
MN	II	2930.758	2929.903	0		328		CR	I	2933.21	2932.35	2		341	
TI	IV	2930.818	2929.961	90		721		MN	II	2933.239	2932.305	40		328	
V	II	2930.987	2930.132	25	81.	478		F	III	2933.343	2932.485	600		537	
CO	II	2931.062	2930.205	150	31.	825		CR	I	2933.43	2932.57	3		341	
MN	I	2931.100	2930.245	20	3.	148		AR	II	2933.4482	2932.5903	60	16.	867	
MN	II	2931.251	2930.393	5	111.	328		CR	II	2933.54	2932.69	30	95.	340	
CU	I	2931.271	2930.416	5		672		NE	I	2933.584	2932.727	10	14.	896	
TI	III	2931.347	2930.490	7		227		CO	II	2933.902	2933.041	5		825	
MN	II	2931.377	2930.520	60		328		MN	II	2933.912	2933.054	450	5.	328	H
CR	I	2931.38	2930.53	1		341		CU	I	2933.915	2933.060	20	35.	672	
FE	I	2931.45	2930.59	1	141.	605		V	I	2934.090	2933.234	3	101.	1000	
CO	II	2931.54	2930.68	3		825		CO	III	2934.13	2933.27	10	27.	673	
V	II	2931.653	2930.798	50	10.	478		MN	II	2934.238	2933.379	8	111.	328	
CR	II	2931.69	2930.83	35	55.	340		MN	I	2934.297	2933.442	3	17.	148	
NA	II	2931.738	2930.883	4		693		FE	II	2934.322	2933.466	1	307.	488	
V	I	2931.75	2930.89	15	101.	1000		CR	I	2934.33	2933.47	6		341	
NI	I	2931.763	2930.908	5	78.	488		TI	I	2934.382	2933.526	250	1.	488	
CR	II	2931.92	2931.07	4	192.	340		CU	II	2934.423	2933.565	2		612	
P	IV	2932.097	2931.240	90		937		CR	II	2934.46	2933.60	12	311.	340	
V	V	2932.1	2931.2			115		NE	II	2934.578	2933.720	40		1016	
TI	II	2932.13	2931.27	40	30.	488		MN	II	2934.637	2933.779	80	50.	328	
CR	I	2932.15	2931.30	1		341		V	II	2934.689	2933.833	15	81.	478	
FE	I	2932.2697	2931.412	2	148.	896		CR	II	2934.81	2933.95	35	95.	340	
FE	II	2932.334	2931.479	5	215.	488		CO	I	2934.870	2934.014	5		603	
AR	II	2932.3385	2931.4809	90		867		MN	I	2934.876	2934.020	30	17.	148	
FE	II	2932.449	2931.593	70		488	N	LI	II	2934.880	2934.022	40		307	
V	II	2932.479	2931.624	20	166.	478		NA	II	2934.922	2934.065	10		693	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
LI	II	2934.924	2934.066	40		307		FE	II	2936.927	2936.068	5	323.	896	
MN	II	2934.928	2934.069	20		328		FE	I	2936.9748	2936.1161	8	89.	896	
SC	I	2934.93	2934.07	2		1030	M	MN	I	2937.013	2936.156	10	3.	148	
LI	II	2934.973	2934.115	100		307		BR	III	2937.02	2936.16	120		586	
CR	II	2934.99	2934.13	10		340		TI	II	2937.03	2936.17	30	26.	488	
SE	II	2935.04	2934.18	10		468		MN	II	2937.25	2936.39	1		328	
LI	II	2935.109	2934.251	20		307		FE	I	2937.297	2936.438	4		896	M
CR	II	2935.16	2934.30	20	211.	340		MG	II	2937.358	2936.501	100	2.	831	
FE	I	2935.229	2934.371	2	117.	896		MM	II	2937.38	2936.52	5	50.	328	
V	II	2935.250	2934.394	60	10.	478		CI	I	2937.403	2936.546	1		603	
SC	IV	2935.263	2934.407	1		720		MG	I	2937.598	2936.739	40	3.	1017	
MN	II	2935.281	2934.422	80	68.	328		MN	II	2937.629	2936.770	30		328	
CR	I	2935.31	2934.45	8.		341		P	III	2937.661	2936.802	1		936	
NI	II	2935.375	2934.516	100		835		FE	I	2937.7623	2936.9034	340	1.	896	
CL	II	2935.45	2934.60	10		345		MN	II	2937.776	2936.918	5		328	
V	I	2935.502	2934.646	2		1000		CR	II	2937.78	2936.92	25	95.	340	
V	I	2935.58	2934.72	20	101.	1000		NI	III	2937.79	2936.93	1		661	
MN	II	2935.582	2934.723	100	50.	328		CU	II	2937.8143	2936.9553	25		612	
FE	II	2935.635	2934.779	25		188		V	II	2937.887	2937.030	15	118.	478	
FE	II	2935.644	2934.788	40	278.	488		SE	III	2937.97	2937.11	0		587	
NI	V	2935.9	2935.0			922	F P	CL	II	2938.00	2937.14	4		345	
NI	II	2935.950	2935.092	5		835		TI	I	2938.158	2937.301	250	1.	488	
C	IV	2935.98	2935.12	7	18.	35		TI	IV	2938.197	2937.328	500		721	
CR	II	2935.98	2935.12	60	55.	340		P	III	2938.244	2937.385	10		936	
NI	II	2936.007	2935.149	5		835		AS	II	2938.4441	2937.5849	280		425	
NE	II	2936.128	2935.270	5		563		V	I	2938.553	2937.696	15	3.	1000	
ZN	II	2936.20	2935.34	20		154		MN	II	2938.565	2937.706	100		328	
MN	II	2936.214	2935.355	60	50.	328		NA	II	2938.582	2937.725	60		693	
CR	I	2936.390	2935.534	10		341		CU	I	2938.622	2937.766	2		672	
AR	II	2936.397	2935.538	30		506		FE	I	2938.666	2937.807	40	122.	896	
CR	II	2936.44	2935.58	4		340		MN	I	2938.773	2937.916	20		488	
NI	II	2936.491	2935.632	20		835		CO	II	2938.84	2937.98	7		825	
MN	I	2936.500	2935.643	15	18.	148		MN	II	2938.889	2938.030	10		328	
NI	II	2936.541	2935.682	20		835		CR	I	2938.89	2938.03	8	72.	341	
MN	I	2936.701	2935.844	3	18.	148		CR	II	2939.10	2938.24	3		340	
V	I	2936.736	2935.880	15	3.	1000		V	II	2939.116	2938.259	20	81.	478	
FE	II	2936.742	2935.883	2		896		V	I	2939.16	2938.30	5	101.	1000	
P	IV	2936.837	2935.978	10		937		K	III	2939.31	2938.45	60	7.	488	
CR	II	2936.91	2936.05	3	96.	340		MG	I	2939.332	2938.473	60	3.	1017	
CO	II	2936.925	2936.066	50		825		MN	I	2939.353	2938.496	2		148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	I	2939.45	2938.59	2		341		CU	II	2942.074	2941.214	10		612	
NI	III	2939.49	2938.63	1		661		V	II	2942.08	2941.22		204.	488	P
V	I	2939.53	2938.67	6	2.	1000		CR	II	2942.18	2941.32	3	95.	340	
TI	II	2939.55	2938.69	30	26.	488		O	V	2942.19	2941.33	200		83	
CR	I	2939.69	2938.83	7	50.	341		FE	I	2942.2027	2941.3426	60	1.	896	
CU	I	2939.725	2938.868	15	46.	672		V	II	2942.230	2941.372	200	10.	478	
AR	II	2939.77	2938.90	10		506		TI	II	2942.25	2941.39	8		601	
FE	III	2939.923	2939.066	10		188		V	II	2942.343	2941.485	10	10.	478	
FE	I	2939.931	2939.071	4	118.	896		MN	II	2942.427	2941.567	80		328	
V	I	2940.12	2939.26	2		1000		CR	I	2942.501	2941.643	2		341	
FE	III	2940.129	2939.269	5		288		O	V	2942.51	2941.65	210		83	
MN	II	2940.172	2939.312	550	5.	328	H	MN	I	2942.539	2941.681	5	4.	148	
CO	III	2940.26	2939.34	7		825		FE	I	2942.63	2941.77	1	141.	605	
CR	I	2940.30	2939.44	5		341		FE	III	2942.677	2941.817	20		288	
CR	II	2940.30	2939.44	20	325.	340		CR	I	2942.732	2941.874	10	5.	341	
CU	I	2940.310	2939.453	2		672		F	III	2942.742	2941.882	12		537	
FE	II	2940.364	2939.506	110	60.	488		AR	II	2942.753	2941.893	10		506	
FE	VIII	2940.4	2939.5			1034		CR	II	2942.82	2941.96	35	294.	340	
FE	III	2940.41	2939.55	120		188		CO	I	2942.850	2941.993	1		603	
CU	II	2940.5639	2939.7042	10		612		TI	II	2942.852	2941.993	50	26.	488	
P	III	2940.575	2939.716	4		936		TI	I	2942.854	2941.995	600	1.	488	
CR	II	2940.64	2939.78	3	237.	340		MG	I	2942.855	2941.995	70	3.	1017	
MN	I	2940.761	2939.904	20	17.	148		V	I	2942.88	2942.02	00		1000	
FE	II	2940.974	2940.114	3	441.	896		MN	II	2942.921	2942.060	20		328	
SE	III	2941.00	2940.14	1		587		V	II	2942.966	2942.106	0		782	
CR	II	2941.08	2940.22	25	294.	340		N	II	2943.03	2942.17	40	37.	200	
AS	II	2941.109	2940.249	30		425		ZN	II	2943.12	2942.26	15		154	
CR	I	2941.17	2940.31	8		341		MN	II	2943.148	2942.287	2		328	
MN	I	2941.189	2940.331	200	10.	148		V	I	2943.19	2942.33	10	3.	1000	
CR	II	2941.28	2940.42	2	96.	340		V	I	2943.219	2942.354	10	3.	1000	
FE	II	2941.324	2940.467	0		645		V	II	2943.23	2942.37	15	118.	478	
NI	III	2941.324	2940.468	3		661		CU	I	2943.30	2942.44	0		672	
MN	I	2941.357	2940.483	2	10.	148		CO	I	2943.482	2942.624	1		603	
FE	I	2941.449	2940.589	10	173.	896		CU	II	2943.484	2942.623	2		612	
NE	II	2941.513	2940.653	80		1016		CO	II	2943.484	2942.624	8		825	
CR	II	2941.83	2940.97	7	206.	340		K	I	2943.520	2942.661	4	6.	488	
CR	I	2941.89	2941.03	3		341		NA	II	2943.53	2942.67	1		693	
MN	I	2941.896	2941.038	40	17.	148		MN	II	2943.551	2942.691	30	82.	328	
V	I	2941.97	2941.11	1		1000		K	I	2943.572	2942.713	4	6.	488	
CO	I	2942.039	2941.182	1		603		MN	I	2943.598	2942.740	8	17.	148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	2943.614	2942.735	40	82.	328		V	I	2945.62	2944.76	10	76.	1000	
NI	II	2943.648	2942.788	2		835		AS	II	2945.815	2944.954	125		425	
SC	I	2943.73	2942.87	1		1030	M	CL	II	2945.88	2945.02	4		345	
AR	II	2943.7538	2942.8933	220	15.	867		FE	I	2945.913	2945.052	10		896	
P	II	2943.760	2942.899	4		496		CR	I	2945.963	2945.104	3	85.	341	
AS	II	2943.8039	2942.9434	100		425		HE	I	2945.967	2945.106	100	11.	497	
CO	II	2943.819	2942.959	100	31.	825		P	III	2946.002	2945.141	4		936	
FE	III	2943.848	2942.989	40		188		CU	I	2946.09	2945.23	3		672	
CR	II	2943.85	2942.99	3	177.	340		AS	II	2946.112	2945.251	125		425	
O	II	2943.86	2943.00	10		168	M	FE	II	2946.121	2945.262	20	60.	488	
CR	I	2943.98	2943.12	1		341		MN	II	2946.15	2945.29	20		328	
TI	II	2943.98	2943.12	12	30.	488		CU	II	2946.228	2945.368	2		670	
MN	II	2943.999	2943.139	140	82.	328		P	III	2946.23	2945.390	40		936	
V	I	2944.055	2943.197	30	1.	1000		TI	II	2946.33	2945.47	50	26.	468	
FE	III	2944.058	2943.197	70		288		BR	II	2946.41	2945.55	A		606	
N	II	2944.150	2943.291		37.	521	P	ZN	II	2946.5	2945.6	2		154	
CO	I	2944.337	2943.479	30	135.	603		CO	I	2946.51	2945.65	4		825	
N	II	2944.356	2943.495	70	37.	200		NA	II	2946.553	2945.693	40		693	
MN	II	2944.389	2943.528	5		328		GE	II	2946.6	2945.7	5		676	
MN	I	2944.408	2943.550	1	3.	148		CR	II	2946.60	2945.74	7	210.	340	
FE	I	2944.434	2943.574	2		896	M	MN	II	2946.723	2945.862	30		328	
V	II	2944.489	2943.631	3	204.	478		FE	I	2946.731	2945.870	0		373	
CR	II	2944.49	2943.64	4	177.	340		CO	I	2946.87	2946.01	0		603	
GA	I	2944.498	2943.639	160	1.	488		NE	II	2946.905	2946.044	90		563	
MG	III	2944.56	2943.71	25		2		FE	I	2946.956	2946.095	1		378	
V	I	2944.70	2943.84	12	76.	1000		CO	II	2947.02	2946.16	12		825	
MN	II	2944.755	2943.894	140	82.	328		FE	II	2947.033	2946.173	1	307.	408	
CO	II	2944.768	2943.900			825		F	II	2947.173	2946.312	4		538	
NI	I	2944.771	2943.912	125	24.	488		V	II	2947.198	2946.337	0		782	
SE	III	2944.88	2944.02	85		587		MN	II	2947.301	2946.439	5		328	
MN	II	2944.92	2944.06	20	68.	328		V	I	2947.40	2946.54	15	1	1000	
P	II	2944.921	2944.060	7		496		CR	II	2947.56	2946.70	15		340	
V	II	2944.979	2944.118	2		782		V	II	2947.581	2946.720	1		782	
GA	I	2945.034	2944.175	160	1.	488		NE	I	2947.592	2946.732	2		723	
FE	II	2945.257	2944.397	12	78.	896	H	CR	II	2947.67	2946.81	50	192.	340	
CR	III	2945.31	2944.45	20		490		FE	III	2947.723	2946.864	25		188	
V	II	2945.427	2944.568	230	10.	478		P	II	2947.912	2947.050	7		496	
NE	I	2945.434	2944.575	2		723		SE	II	2947.92	2947.13	50		468	
CO	I	2945.44	2944.58	2		603		FE	I	2947.978	2947.116	0	182.	378	
CR	III	2945.49	2944.63	2		490		F	II	2948.002	2947.140	1		538	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
F	III	2948.108	2947.246	110		537		NE	I	2949.904	2949.043	10		723	
AR	II	2948.137	2947.275	20		506		CO	II	2949.92	2949.06	M		825	
NE	I	2948.164	2947.303	60	11.	896		CR	II	2949.93	2949.07	2	210.	340	
CU	II	2948.1654	2947.3038	6		612		V	I	2949.95	2949.09	1		1000	
FE	I	2948.2246	2947.3631	6	131.	896		CL	III	2950.0	2949.1	100		43	
NA	II	2948.300	2947.440	60		693		V	II	2950.032	2949.172	40	183.	478	
NI	II	2948.316	2947.454	40	35.	835		FE	II	2950.039	2949.178	450	277.	488	
CO	II	2948.36	2947.49	1		825		CO	II	2950.04	2949.18	2		825	
CR	II	2948.36	2947.50	25	325.	340		MN	II	2950.066	2949.204	700	5.	328	H
N	II	2948.380	2947.520		45.	521	P	NI	I	2950.079	2949.218	15		488	N
MN	I	2948.493	2947.634	3	4.	148		NE	I	2950.177	2949.316	15		723	
FE	II	2948.518	2947.658	750	78.	488	H	CU	II	2950.208	2949.346	5		612	
TI	I	2948.58	2947.72	30	21.	488		CR	II	2950.30	2949.44	20	178.	340	
N	II	2948.627	2947.767		45.	521	P	N	II	2950.469	2949.608		45.	521	P
SE	III	2948.70	2947.84	30		587		V	I	2950.48	2949.62	25	3.	1000	
CO	II	2948.71	2947.85	8		825		FE	I	2950.551	2949.688	0	117.	378	
SC	IV	2948.730	2947.870	1		720		CR	II	2950.65	2949.79	10	210.	340	
FE	I	2948.7376	2947.8759	320	1.	896		N	II	2950.716	2949.855		45.	521	P
P	III	2948.763	2947.901	1		936		F	III	2950.746	2949.884	150		537	
AS	IV	2948.80	2947.94	10		584		V	I	2950.77	2949.91	2	101.	1000	
P	II	2948.932	2948.070	3		496		SC	II	2950.78	2949.92	1		1028	
V	II	2948.936	2948.076	60	196.	478		CR	II	2950.96	2950.10	10	178.	340	
P	IV	2948.953	2948.091	40		937		V	II	2950.974	2950.112	0		782	
AR	II	2948.981	2948.119	5		506		V	V	2950.995	2950.134	80		929	
CR	II	2949.06	2948.20	3	210.	340		CO	VI	2951.0	2950.1			108	F
II	I	2949.115	2948.255	600	1.	488		S	III	2951.09	2950.23	300	18.	323	
CO	I	2949.16	2948.30	2		603		FE	I	2951.105	2950.243	60	120.	896	
S	III	2949.20	2948.34	200	18.	323		FE	III	2951.155	2950.295	40		188	
FE	III	2949.247	2948.388	150	9.	188		V	II	2951.204	2950.344	80	10.	478	
FE	I	2949.2947	2948.4329	40	166.	896		CL	II	2951.213	2950.351	32		613	
SE	III	2949.32	2948.46	150		587		CU	I	2951.267	2950.407	1		672	
CR	II	2949.32	2948.47	3	113.	340		CR	II	2951.55	2950.69	7	65.	340	
BR	III	2949.33	2948.47	10		586		NI	II	2951.578	2950.716	15		835	
CO	I	2949.35	2948.49	1		603		MG	III	2951.64	2950.77	7		2	
NI	II	2949.377	2948.515	5		835		MN	I	2951.839	2950.979	3	4.	148	
FE	I	2949.589	2948.727	3	118.	896		CO	II	2951.86	2951.00	1		825	
V	II	2949.69	2948.83	2		478		NE	II	2951.916	2951.054	10		563	
CR	I	2949.73	2948.87	6	50.	341		NE	II	2951.954	2951.091	10		563	
FE	I	2949.813	2948.952	3		896	M	FE	II	2951.956	2951.095	20	214.	488	
NI	II	2949.826	2948.964	4		835		MN	II	2952.031	2951.168	140	82.	320	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CU	I	2952.07	2951.21	5		672		MN	II	2955.077	2954.213	50	49.	328	
NA	II	2952.096	2951.235	150	14.	693		MN	II	2955.13	2954.26	5		328	
FE	I	2952.219	2951.356	0		378		V	I	2955.19	2954.33	20	1.	1000	
CR	II	2952.25	2951.39	10	177.	340		F	III	2955.201	2954.338	80		537	
V	II	2952.42	2951.56	8		473		MN	II	2955.43	2954.57	0		328	
MN	II	2952.423	2951.560	10		328		CO	II	2955.46	2954.59	M		825	
FE	III	2952.499	2951.639	25		188		CR	II	2955.51	2954.65	10	237.	340	
CO	I	2952.55	2951.69	1		603		FE	I	2955.5155	2954.6522	12	132.	896	
V	I	2952.70	2951.84	2		1000		N	II	2955.546	2954.684		45.	521	P
MN	II	2952.746	2951.883	40	68.	328		CO	II	2955.591	2954.728	12		825	
CR	II	2952.80	2951.94	10	177.	340		TI	II	2955.62	2954.76	60	34#	488	
FE	III	2952.862	2951.999	5		288		CO	I	2955.69	2954.83	1		603	
V	II	2952.95	2952.07	150	10.	478		NI	II	2955.726	2954.863	75		835	
TI	II	2952.96	2952.10	40	26.	488		N	II	2955.889	2955.027		45.	521	P
CR	I	2953.02	2952.15	1		341		FE	III	2955.921	2955.060	40	9.	188	
NI	II	2953.046	2952.183	2		835		CR	II	2955.98	2955.12	10	177.	340	
SE	II	2953.08	2952.28	350	19.	468		F	III	2955.988	2955.124	200		537	
N	II	2953.112	2952.250		45.	521	P	MN	II	2956.004	2955.141	100	49.	328	
AS	II	2953.140	2952.278	190		425		MN	II	2956.165	2955.302	10	49.	328	
NA	II	2953.255	2952.394	25		693		MN	II	2956.243	2955.379	60	49.	328	
CR	II	2953.31	2952.45	12	311.	340		CO	I	2956.243	2955.382	30		603	
NE	I	2953.389	2952.527	5		723		SC	IV	2956.250	2955.388	40		720	
N	II	2953.452	2952.590		45.	521	P	AR	II	2956.2520	2955.3884	120		867	
MN	II	2953.735	2952.871	100	49.	328		P	IV	2956.377	2955.513	60		937	
MN	I	2953.869	2953.008	10	4.	148		V	II	2956.447	2955.584	30	196.	478	
NE	II	2953.877	2953.014	5		563		CR	II	2956.54	2955.68	2	176.	340	
CR	II	2954.20	2953.34	35	55.	340		NE	II	2956.5890	2955.7254	150	8.	389	
CO	II	2954.24	2953.38	30		825		SE	III	2956.59	2955.73	50		14	
C	IV	2954.3	2953.4	1	16.	35	Q	V	I	2956.667	2955.806	15	3.	1000	
V	II	2954.31	2953.45	1		478		MN	II	2956.866	2956.002	80	49.	328	
FE	I	2954.3493	2953.4862	25	166.	896		N	II	2956.899	2956.036		44.	521	P
FE	I	2954.402	2953.539	2		896	M	MN	I	2956.962	2956.101	20	3.	148	
CR	II	2954.56	2953.70	45	192.	340		CR	I	2956.99	2956.13	1	86.	341	
FE	II	2954.636	2953.774	550	60.	488	H	TI	I	2956.996	2956.133	700	1.	488	
FE	I	2954.8031	2953.9399	240	1.	896		MN	X	2957.0	2956.1			726	F
V	I	2954.804	2953.943	50	3.	1000		V	I	2957.003	2956.142	1		1000	
C	IV	2954.81	2953.95	7	16.	35		MN	II	2957.034	2956.170	100	49.	328	
BR	II	2954.903	2954.041	50		606		FE	III	2957.167	2956.303	5		288	
FE	II	2954.912	2954.050	70	253.	488		CR	I	2957.189	2956.328	15	5.	341	
CO	III	2954.97	2954.11	1		673		CO	VI	2957.2	2956.3			108	F

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	V	2957.4	2956.5			1034		D	I	2959.228	2958.365		2.	523	F P
AR	II	2957.405	2956.541	40		506		FE	I	2959.326	2958.462	1	317.	378	
V	I	2957.43	2956.57	1		1000		CR	II	2959.37	2958.51	2	226.	340	
CR	II	2957.46	2956.60	10	176.	340		FE	II	2959.391	2958.528	5	398.	488	
V	II	2957.506	2956.645	2	196.	478		V	II	2959.47	2958.61	20	196.	478	
ZN	II	2957.55	2956.69	20		154		MN	II	2959.579	2958.715	50		328	
FE	I	2957.568	2956.704	6	118.	896		MN	II	2959.807	2958.942	100	49.	328	
MN	II	2957.626	2956.762	5		328		TI	II	2959.84	2958.98	50	34.	488	
TI	I	2957.659	2956.796	250	1.	488		CR	I	2959.93	2959.07	7	85.	341	
FE	I	2957.722	2956.858	3	165.	896		SI	III	2960.015	2959.150	40	91.	768	
NI	II	2957.724	2956.860	5		835		CO	I	2960.02	2959.16	1		603	
MN	I	2957.833	2956.971	10	4.	148		CU	II	2960.193	2959.329	7		612	
MN	II	2957.841	2956.977	50	49.	328		FE	I	2960.153	2959.329	5		896	M
V	I	2958.037	2957.176	8	76.	1000		SC	IV	2960.205	2959.341	5		720	
CR	II	2958.12	2957.26	4	113.	340		CR	II	2960.40	2959.54	18	210.	340	
CR	I	2958.14	2957.28	2	50.	341		V	II	2960.41	2959.55	1	153.	478	
NE	I	2958.156	2957.293	8		723		AS	II	2960.4368	2959.5722	750		425	
V	I	2958.16	2957.30	10	1.	1000		CO	II	2960.44	2959.57	2		825	
TI	IV	2958.170	2957.306	350		721		FE	II	2960.467	2959.602	3	254.	896	
CU	II	2958.185	2957.321	10		612		NI	II	2960.502	2959.638	2		835	
N	II	2958.199	2957.336		45.	521	P	F	III	2960.527	2959.662	200		537	
FE	I	2958.2284	2957.3644	155	1.	896		SI	III	2960.54	2959.67	15	91.	768	
MN	II	2958.259	2957.394	10		328		O	III	2960.54	2959.68	60		168	
FE	I	2958.3503	2957.4863	6	132.	896		FE	I	2960.547	2959.683	15	172.	896	
V	II	2958.381	2957.520	100	10.	478		TI	I	2960.57	2959.71	30	28.	488	
AR	II	2958.396	2957.532	30		506		FE	II	2960.702	2959.838	4	403.	896	
CR	II	2958.41	2957.55	5	237.	340		FE	II	2960.705	2959.841	70	439.	488	
CO	I	2958.533	2957.672	50	134.	603		MN	II	2960.806	2959.940	20		328	
N	II	2958.543	2957.680		45.	521	P	CR	II	2960.81	2959.95	18	177.	340	
MN	II	2958.68	2957.82	0		328		TI	I	2960.84	2959.98	50	28.	488	
MN	II	2958.785	2957.920	1		328		V	I	2960.85	2959.99	2		1000	
CR	II	2958.90	2958.04	4		340		FE	I	2960.8559	2959.9912	80	316.	896	
NI	III	2958.913	2958.050	5		661		NA	II	2960.974	2960.110	4		693	
MN	II	2958.928	2958.064	40		328		K	I	2961.067	2960.203	4	5.	488	
BR	II	2958.93	2958.07	10		606		P	IV	2961.070	2960.205	4		937	
P	III	2958.955	2958.090	4		936		AR	II	2961.125	2960.260	50		506	
CR	II	2959.03	2958.17	1	158.	340		FE	I	2961.1608	2960.2961	6	134.	896	
NI	I	2959.146	2958.283	5	74.	488		MN	II	2961.212	2960.345	50		328	
FE	III	2959.148	2958.286	90	102.	188		MG	III	2961.31	2960.45	7		2	
TI	II	2959.16	2958.30	20	26.	488		NE	II	2961.318	2960.453	70		563	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	V	2961.33	2960.47			229	F	V	II	2964.113	2963.249	9	154	478	
AR	II	2961.379	2960.514	5		506		MN	I	2964.113	2963.250	10	4.	148	
FE	I	2961.419	2960.554	3		896	M	CR	I	2964.12	2963.26	2		341	
NE	V	2961.5	2960.6	111		885	M	K	I	2964.142	2963.277	4	5.	488	
FE	I	2961.5251	2960.6602	3	178.	896		N	II	2964.302	2963.437		44.	521	P
N	II	2961.638	2960.774		44.	521	P	CR	II	2964.32	2963.46	20	176.	340	
V	II	2961.640	2960.777	6	130.	478		MN	I	2964.469	2963.606	20	3.	148	
V	I	2961.712	2960.849			1000		MN	II	2964.49	2963.63	0		328	
P	V	2961.862	2960.997	300		524		FE	I	2964.57	2963.71	1	173.	605	
AL	III	2961.910	2960.974	5		826		CR	I	2964.60	2963.74	4	50.	341	
AL	III	2961.910	2961.005	1		826		AS	II	2964.6487	2963.7831	125		425	
FE	II	2961.983	2961.119	0	403.	488		V	I	2964.671	2963.818	6	75.	1000	
V	I	2961.990	2961.127	10	76.	1000		V	II	2964.72	2963.86	4		478	
AL	III	2961.998	2961.060	10		826		FE	II	2964.733	2963.868	6	439.	896	
MN	II	2962.02	2961.16	1		328		P	III	2964.758	2963.892	1		936	
CU	I	2962.028	2961.165	500	15.	672		SE	II	2964.77	2963.91	350	20.	468	
CR	I	2962.04	2961.18	4		341		CR	III	2964.93	2964.06	5		490	
MN	II	2962.070	2961.204	5		328		FE	II	2964.996	2964.131	220	252.	468	
P	IV	2962.107	2961.242	200		937		FE	I	2965.000	2964.140	1		896	M
FE	II	2962.136	2961.272	110	60.	488		CL	II	2965.054	2964.188	43		613	
AL	IV	2962.15	2961.29	300		888		FE	I	2965.062	2964.196	1		378	
P	V	2962.25	2961.39	7		597		MN	II	2965.28	2964.41	1		328	
TI	I	2962.34	2961.48	20	28.	488		MN	II	2965.376	2964.509	15		328	
AS	II	2962.477	2961.611	100		425		CD	VI	2965.4	2964.5			108	F
F	III	2962.481	2961.616	375		537		NI	II	2965.468	2964.602	10		835	
MN	II	2962.554	2961.689	100	49.	328		FE	II	2965.494	2964.629	360	78.	488	
CR	II	2962.56	2961.70	25	55.	340		S	III	2965.66	2964.80	400	18.	323	
FE	I	2962.56	2961.70	1	119.	605		BR	II	2965.683	2964.817	0		606	
CR	II	2962.58	2961.72	25	177.	340		C	I	2965.705	2964.840	1	1.	821	
CR	I	2962.63	2961.77	4	85.	341		FE	II	2965.901	2965.035	8	78.	896	
S	III	2962.69	2961.83	0	18.	323		CR	II	2966.04	2965.18	2	176.	340	
V	II	2962.877	2962.014	5	196.	478		MG	II	2966.06	2965.19	0	7.	488	
V	I	2962.93	2962.07	1		1000		TI	I	2966.096	2965.231	50	27.	488	
FE	I	2962.9732	2962.1080	1	57.	896		FE	I	2966.1204	2965.2544	125	1.	896	
CR	I	2963.26	2962.40	6	86.	341		MN	III	2966.16	2965.30	1		301	
V	I	2963.646	2962.784	30	1.	1000		CR	III	2966.21	2965.34	10		490	
FE	II	2963.801	2962.936	5	398.	488		FE	II	2966.260	2965.395	20	251.	488	
N	II	2963.818	2962.953	70	44.	200		CL	III	2966.43	2965.56	600	11.	43	
FE	III	2964.093	2963.230	50	9.	188		V	II	2966.431	2965.565	1		782	
NE	II	2964.1021	2963.2366	50		389		NE	V	2966.5	2965.6	120		885	M

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	III	2966.511	2965.645	40	.	288		TI	I	2969.097	2968.231	40	29.	1015	
TI	I	2966.546	2965.681	80	27.	488		AS	II	2969.111	2968.243	40		425	
TI	I	2966.59	2965.72	150	27.	488		V	I	2969.15	2968.29	5	76.	1000	
NA	II	2966.611	2965.745	10		693		V	II	2969.238	2968.373	200	28.	478	
MN	II	2966.662	2965.795	5		328		MN	II	2969.280	2968.415	1		328	
FE	I	2966.672	2965.806	15	147.	896		FE	I	2969.3442	2968.4774	3	135.	896	
SC	I	2966.73	2965.86	2	11.	1015		MN	II	2969.48	2968.61	0		328	
MN	II	2966.820	2965.954	40		328		CR	II	2969.54	2968.68	15	176.	340	
CR	II	2966.89	2966.03	40	94.	340		FE	II	2969.604	2968.738	20	253.	488	
V	I	2966.943	2966.079	0		1000		CU	II	2969.611	2968.745	2		612	
C	II	2967.053	2966.187	25	40.	287		NI	II	2969.670	2968.804	2		835	
FE	I	2967.131	2966.264	25	118.	896		C	II	2969.703	2968.836	10	40.	287	
MG	III	2967.20	2966.34	25		2		NI	II	2969.759	2968.892	25		835	
NI	II	2967.234	2966.368	2		835		FE	II	2969.772	2968.906	20		488	
MN	I	2967.238	2966.374	1		148		BR	III	2969.82	2968.95	300		586	N
TI	I	2967.25	2966.38	10	28.	488		CR	I	2969.84	2968.98	2		341	
C	II	2967.521	2966.655	25	40.	287		V	I	2969.845	2968.981	3	75.	1000	
CR	I	2967.71	2966.85	7	5.	341		MG	II	2969.89	2969.02	10	6.	488	
C	II	2967.737	2966.871	60	40.	287		NI	I	2970.056	2969.190	5	74.	488	
F	III	2967.760	2966.894	150		537		CO	I	2970.11	2969.24	2		603	
FE	I	2967.7646	2966.8982	380	1.	896		NI	II	2970.215	2969.348	120		835	
P	III	2967.799	2966.933	1		936		F	I	2970.220	2969.350	2		420	
V	II	2967.932	2967.066	20		782		FE	I	2970.227	2969.360	110	11.	896	
NE	II	2968.0495	2967.1831	150		389		V	I	2970.228	2969.363	1		1000	
C	I	2968.078	2967.214	4	1.	821		TI	I	2970.24	2969.37	10	28.	488	
TI	I	2968.086	2967.220	250	1.	488		NE	II	2970.274	2969.407	40		1016	
F	I	2968.140	2967.280	2		420		GA	II	2970.28	2969.41	50		652	
BR	II	2968.145	2967.279	600		606		FE	I	2970.3414	2969.4743	50	30.	896	
NE	V	2968.4	2967.5	185		885	M	CR	I	2970.39	2969.53	1	86.	341	
V	I	2968.409	2967.545	5	60.	478		C	II	2970.450	2969.590	1	40.	287	
C	II	2968.496	2967.629	25	40.	287		CO	I	2970.481	2969.617	1		603	
CR	I	2968.50	2967.64	15	11.	341		CO	II	2970.484	2969.617	10		825	
C	II	2968.735	2967.868	120	40.	287		P	IV	2970.505	2969.638	10		937	
MG	II	2968.74	2967.87	10	7.	488		CR	II	2970.53	2969.67	15	192.	340	
V	II	2968.88	2968.02	7		478		CO	I	2970.66	2969.79	1		603	
MN	II	2968.904	2968.037	2		328		CU	I	2970.66	2969.80	0		672	
FE	II	2968.985	2969.119	1	398.	488		V	II	2970.711	2969.846	5	153.	478	
MN	II	2969.00	2968.14	2		328		NI	II	2970.713	2969.846	30		835	
CR	I	2969.06	2968.20	2	50.	341		V	I	2970.733	2969.868	0		1000	
CR	II	2969.06	2968.20	3	225.	340		AS	II	2970.752	2969.885	30		425	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	II	2970.801	2969.934	285	277.	488		CR	II	2972.77	2971.90	75	80.	340	
MN	II	2970.82	2969.95	0		328		V	II	2972.863	2971.998	4	141.	478	
SE	III	2970.83	2969.96	85		587		FE	II	2972.883	2972.016	1	398.	488	
NA	VI	2970.9	2970.0			108	F	CO	II	2973.04	2972.17			825	
LI	III	2970.914	2970.046			309		V	II	2973.128	2972.263	80	87.	478	
P	IV	2970.956	2970.089	120		937		FE	I	2973.147	2972.280	50	118.	896	
AS	II	2970.964	2970.097	50		425		NE	II	2973.152	2972.284	80		1016	
FE	I	2970.9667	2970.0995	280	1.	896		O	I	2973.154	2972.286		2.	1005	F
FE	I	2970.9853	2970.1181	280	11.	896		CO	I	2973.16	2972.30	0		603	
NE	V	2971.1	2970.2	96		885	M	BR	II	2973.177	2972.309	1000		606	
SI	I	2971.2219	2970.3547	55	1.	608		NI	II	2973.325	2972.457	10		835	
TI	I	2971.251	2970.384	100	29.	1015		N	III	2973.43	2972.56	25	25.	521	
V	II	2971.291	2970.427	6		478		CR	II	2973.44	2972.57	8	237.	340	
CO	II	2971.37	2970.50	1		825		CL	II	2973.475	2972.606	22		613	
FE	II	2971.384	2970.517	15	60.	896		MN	II	2973.491	2972.623	40		328	
TI	I	2971.419	2970.552	40	27.	488		CR	II	2973.54	2972.67	7	80.	340	
CR	II	2971.51	2970.65	2	175.	340		FE	II	2973.637	2972.769	5	390.	488	
NI	II	2971.518	2970.651	1		835		NE	II	2973.731	2972.863	70		1016	
CL	III	2971.54	2970.67	400	11.	43		AS	II	2973.734	2972.867	0		425	
FE	II	2971.549	2970.682	110	276.	488		SC	IV	2973.781	2972.913	1		720	
NA	II	2971.591	2970.724	4		693		CO	I	2973.80	2972.93	1		603	
MN	II	2971.703	2970.835	2		328		NE	II	2973.867	2972.999	100		1016	
SE	III	2971.82	2970.95	150		587		NI	II	2973.872	2973.004	15		835	
MN	I	2971.821	2970.956	4	3.	148		CR	II	2973.97	2973.10	12	113.	340	
MN	II	2971.824	2970.956	10		328		CO	I	2973.988	2973.123	1		603	
GA	II	2971.88	2971.01	10		652		FE	I	2974.0002	2973.1322	340	1.	896	
CR	I	2971.967	2971.102	25	11.	341		MN	II	2974.09	2973.23	1		328	
CO	III	2972.17	2971.30	5	37.	673		FE	I	2974.1032	2973.2352	220	1.	896	
AS	II	2972.181	2971.313	150		425		F	II	2974.12	2973.25	1		538	
CO	I	2972.229	2971.363	1		603		CR	I	2974.13	2973.26	1	59.	341	
MN	II	2972.233	2971.365	5		328		MN	II	2974.177	2973.308	20		328	
CU	II	2972.342	2971.475	2		612		F	II	2974.29	2973.42	1		538	
NI	II	2972.342	2971.475	3		835		CL	II	2974.32	2973.46	4		345	
CU	I	2972.37	2971.50	1		672		BR	II	2974.330	2973.462	250		606	
SI	IV	2972.390	2971.522	10	33.	767		CR	I	2974.38	2973.51	1		341	
FE	VIII	2972.4	2971.5			1034		N	II	2974.469	2973.601	40	43.	200	
V	II	2972.436	2971.571	8	141.	478		CU	II	2974.5177	2973.6496	15		612	
GA	II	2972.47	2971.60	50		652		CO	III	2974.54	2973.68	1		673	
FE	II	2972.483	2971.616	5	252.	488		NI	I	2974.598	2973.730	5	66.	488	
MG	II	2972.57	2971.70	10	6.	488		F	II	2974.642	2973.774	120		538	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	III	2974.761	2973.896	60	9.	188		N	II	2976.815	2975.947		43.	521	P
MN	II	2974.785	2973.917	5		328		FE	I	2976.9969	2976.1282	12	131.	896	
V	II	2974.841	2973.975	40	218.	478		P	III	2977.014	2976.145	25		936	
SC	I	2974.874	2974.006	5	11.	1015		P	IV	2977.014	2976.145	25		937	
F	II	2974.90	2974.03	1		538		V	II	2977.063	2976.197	60	28.	478	
MN	I	2974.954	2974.089	20	41.	148		V	II	2977.17	2976.30	5		782	
V	I	2975.083	2974.217	8	75.	1000		TI	I	2977.19	2976.32	20	20.	488	
NA	II	2975.102	2974.234	10		693		NI	II	2977.260	2976.391	40		835	
CR	III	2975.20	2974.33			893	F P	MN	II	2977.273	2976.405	20	81.	328	
F	II	2975.29	2974.42	10		538		MN	II	2977.347	2976.477	125	81.	328	
MN	II	2975.309	2974.450	5		328		FE	I	2977.3658	2976.4970	3	56.	896	
N	V	2975.38	2974.52	90	59.	313		V	II	2977.383	2976.517	100	28.	478	
N	II	2975.52	2974.65	20	43.	200		V	I	2977.393	2976.527	8	75.	1000	
NI	II	2975.524	2974.655	3		835		NE	II	2977.431	2976.562	80		1016	
CU	I	2975.540	2974.675	10	46.	672		MN	I	2977.454	2976.588	1		148	
NE	I	2975.590	2974.722	125	10.	896		NI	III	2977.467	2976.598	10		661	
NI	II	2975.597	2974.729	20		835		NE	II	2977.486	2976.617	50		1016	
GA	II	2975.64	2974.77	120		652		F	II	2977.50	2976.63	1		538	
FE	I	2975.649	2974.780	0	335.	896		P	IV	2977.518	2976.649	60		937	
MN	II	2975.664	2974.795	5		328		CR	II	2977.57	2976.70	35	55.	340	
NE	V	2975.7	2974.8			108	F	V	II	2977.59	2976.72		153.	488	P
CR	II	2975.70	2974.83	4		340		MN	II	2977.734	2976.865	100	81.	328	
TI	I	2975.794	2974.926	40	27.	488		FE	I	2977.778	2976.909	2	172.	896	
NA	II	2975.857	2974.988	90	9.	693		N	II	2977.840	2976.971	70	43.	200	
V	I	2975.942	2975.077	8	82.	1000		MN	I	2977.854	2976.987	1		148	
CU	II	2976.140	2975.272	3		612		CU	II	2977.877	2977.008	2		612	
CL	VIII	2976.2	2975.3			111		F	II	2977.91	2977.04	1		538	
CO	I	2976.22	2975.35	1		603		NA	II	2977.999	2977.130	25		693	
CO	I	2976.330	2975.464	4		603		F	II	2978.00	2977.13	1		538	
CR	I	2976.344	2975.478	30	11.	341		MN	II	2978.016	2977.147	1		328	
CU	III	2976.376	2975.508	100		724		MN	I	2978.056	2977.190	1		148	
NE	I	2976.391	2975.523	32		796		FE	III	2978.088	2977.222	90	9.	188	
NE	V	2976.4	2975.5	120		885	M	P	III	2978.111	2977.242	10		936	
CU	II	2976.4980	2975.6295	12		612		N	III	2978.16	2977.29	10	25.	521	
V	II	2976.516	2975.650	50	28.	478		MN	II	2978.162	2977.292	1		328	
FE	I	2976.524	2975.655	0		378		MN	I	2978.170	2977.303	3		148	
NI	II	2976.578	2975.710	10		835		NE	V	2978.2	2977.3	107		885	M
N	II	2976.593	2975.725		43.	521	P	N	II	2978.20	2977.33		43.	521	P
CR	II	2976.67	2975.80	4	321.	340		FE	II	2978.295	2977.428			645	
FE	II	2976.806	2975.938	110	60.	488		CO	I	2978.328	2977.462	1		603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	I	2978.415	2977.550	25	1.	1000		V	II	2979.969	2979.102	5	44.	478	
FE	III	2978.438	2977.572	60	102.	188		TI	II	2980.068	2979.199	10	123.	1015	
CR	II	2978.52	2977.65	2	112.	340		V	I	2980.08	2979.21	2		1000	
P	III	2978.545	2977.676	10		936		AS	II	2980.1190	2979.2496	30		425	
MN	II	2978.559	2977.690	2		328		FF	II	2980.225	2979.355	6		896	
MN	I	2978.622	2977.755	1		148		F	II	2980.24	2979.37	1		538	
TI	II	2978.67	2977.80	7		488	N	CU	I	2980.247	2979.380	25	57.	672	
F	II	2978.69	2977.82	10		538		NE	II	2980.330	2979.461	100		1016	
MN	II	2978.692	2977.823	60	81.	328		V	II	2980.34	2979.47	4		478	
MN	I	2978.789	2977.922	1		148		NA	II	2980.529	2979.660	90		693	
CO	I	2978.877	2978.010	30		603		SC	II	2980.553	2979.683	5	44.	1015	
CO	III	2978.88	2978.01	10	37.	673		CR	II	2980.60	2979.73	80	80.	340	
MN	II	2978.903	2978.036	20	81.	326		NE	I	2980.681	2979.812	3		896	
FE	I	2978.929	2978.060	1		378		P	III	2980.741	2979.871	4		936	
FE	III	2978.961	2978.091	5		288		MN	I	2980.861	2979.994	8	41.	148	
MN	I	2978.981	2978.114	8	41.	148		NE	II	2980.908	2980.038	90		1016	
F	III	2979.019	2978.150	300		537		F	II	2980.97	2980.10	4		538	
V	II	2979.092	2978.226	20	87.	478		P	III	2981.025	2980.155	1		936	
CU	I	2979.162	2978.295	30	58.	672		TI	I	2981.15	2980.28	0	27.	488	
MN	II	2979.19	2978.32	1		328		CL	II	2981.306	2980.436	12		613	
MN	I	2979.200	2978.333	2		148		MN	II	2981.316	2980.446	2		328	
N	II	2979.284	2978.415		43.	521	P	V	II	2981.35	2980.48	0		782	
CL	II	2979.35	2978.48	14		345		MN	I	2981.360	2980.493	2	41.	148	
P	V	2979.423	2978.554	450		524		SI	III	2981.389	2980.519	G	34.	768	
MN	I	2979.432	2978.566	15	3.	148		FE	I	2981.4039	2980.5341	12	317.	896	
P	V	2979.45	2978.58	15		52		F	III	2981.480	2980.610	12		537	
N	II	2979.507	2978.638		43.	521	P	NA	II	2981.490	2980.623	25		693	
NI	II	2979.565	2978.695	2		835		NE	V	2981.5	2980.6	80		885	M
SC	IV	2979.680	2978.811	1		720		NE	I	2981.518	2980.649	20		896	
N	III	2979.70	2978.83	10	25.	521		FE	III	2981.586	2980.716	20		288	
FE	II	2979.719	2978.850	20	276.	488		MN	II	2981.593	2980.722	40		328	
CU	III	2979.735	2978.866	100		724		SC	I	2981.619	2980.752	6	11.	1015	
V	I	2979.803	2978.936	4	65.	1000		N	V	2981.65	2980.78	150	61.	313	
CO	I	2979.817	2978.950	1		603		CR	I	2981.651	2980.784	25	11.	341	
CR	I	2979.85	2978.98	1		341		FE	II	2981.724	2980.857	1		645	
MN	II	2979.861	2978.990	80	81.	328		CL	II	2981.754	2980.884	14		613	
AR	II	2979.9197	2979.0503	200	15.	867		NE	I	2981.789	2980.922	84		796	
SE	III	2979.96	2979.09	30		587		FE	II	2981.830	2980.963	70	253.	488	
FE	II	2979.965	2979.096	40	306.	488		NI	II	2981.912	2981.042	25		835	
FE	II	2979.965	2979.096	40	403.	488		V	II	2982.068	2981.200	70	87.	478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
N	V	2982.18	2981.31	250	64.	313		NI	II	2984.067	2983.197	10		835	
B	V	2982.23	2981.36			309		TI	I	2984.174	2983.306	200	29.	1015	
CR	I	2982.29	2981.42	4	59.	341		MN	II	2984.287	2983.416	3		328	
TI	I	2982.315	2981.448	20	29.	1015		NI	I	2984.294	2983.426	20	66.	488	
FE	I	2982.3151	2981.4451	240	11.	896		CO	I	2984.37	2983.50	2		603	
V	I	2982.405	2981.537	0		1000		NI	II	2984.414	2983.544	10		835	
NI	I	2982.512	2981.645	100	65.	488		V	II	2984.426	2983.558	80	28.	478	
CU	II	2982.6569	2981.7868	15		812		FE	I	2984.4403	2983.5698	320	9.	896	
BR	II	2982.679	2981.812	250	9.	488		N	III	2984.51	2983.64	F 4	25.	521	
MN	II	2982.690	2981.820	5		328		O	III	2984.53	2983.66		7.	1015	
NI	V	2982.7	2981.8			922	F P	CO	I	2984.55	2983.68	0		603	
FE	I	2982.722	2981.852	25	118.	896		BR	II	2984.627	2983.759	50		606	
BR	II	2982.757	2981.890	350		606		CU	II	2984.65J3	2983.7677	12		612	
V	II	2982.792	2981.924	15	153.	478		O	III	2984.65	2983.78	200	18.	168	
CU	II	2982.815	2981.945	15		612		MN	I	2984.671	2984.002	2	41.	148	
CO	II	2982.86	2981.99	2		825		CR	I	2984.886	2984.014	7	59.	341	
AS	III	2982.87	2982.00	250		404		NI	I	2984.999	2984.131	60	12.	1015	
FE	II	2982.926	2982.059	285	335.	488	N	NA	II	2985.051	2984.183	120	5.	693	
N	III	2982.94	2982.07	4		246		CU	I	2985.135	2984.267	5		672	
C	III	2982.976	2982.106	285	13.	34		FE	II	2985.141	2984.273	0	322.	488	
CU	I	2982.992	2982.123	3		672	N	TI	II	2985.22	2984.35	M 375	28.	1015	
S		2983.	2982.			107		F	III	2985.353	2984.492	5		537	M
V	I	2983.05	2982.18	2		1000		FE	I	2985.430	2984.559	5		896	
FE	I	2983.0990	2982.2288	2	178.	896		MN	II	2985.465	2984.593	60		328	
FE	II	2983.106	2982.239	40	277.	488		CR	II	2985.56	2984.69	10	55.	340	
CO	I	2983.130	2982.262	1		603		TI	III	2985.617	2984.747	775	8.	227	
NI	II	2983.161	2982.291	10		835		FE	I	2985.638	2984.767	60	29.	696	
V	II	2983.19	2982.32	0		782		CO	II	2985.64	2984.77	10		825	
NE	II	2983.408	2982.538	70		1016		CR	I	2985.69	2984.82	3	3.	341	
NE	I	2983.542	2982.672	110	9.	896		FE	II	2985.695	2984.824	50	78.	896	H
CR	II	2983.56	2982.69	2		340		FE	I	2985.831	2984.960	3		896	M
V	II	2983.62	2982.75	40	28.	478		CR	II	2985.88	2985.01	7	174.	340	
CU	I	2983.633	2982.765	8		672		MN	II	2985.992	2985.120	15		328	
CL	II	2983.646	2982.776	148	53.	613		V	II	2986.052	2985.184	60	218.	478	
NE	V	2983.8	2982.9	72		885	M	CR	II	2986.19	2985.32	75	80.	340	
NI	II	2983.813	2982.943	20		835		TI	I	2986.345	2985.477	30	29.	1015	
CA	I	2983.843	2982.972	2		1018		CO	II	2986.39	2985.51	1		825	
V	II	2983.877	2983.009	10	60.	478		FE	II	2986.413	2985.545	750	78.	488	H
CU	I	2983.906	2983.038	3	58.	672		NI	II	2986.482	2985.611	10		835	
S	III	2984.	2983.			107		CR	I	2986.718	2985.849	20	11.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
BR	II	2986.766	2985.897	350		606		SI	I	2988.5169	2987.6453	150	1.	608	
V	II	2986.79	2985.92	2		782		V	II	2988.562	2987.690	0		782	
CU	I	2986.794	2985.926	10	45.	672		CA	II	2988.59	2987.72	4	11.	1015	
CO	II	2986.83	2985.96	2		825		CU	III	2988.872	2988.000	2		724	
S	III	2986.85	2985.98	600	18.	323		V	II	2988.896	2988.027	80	27.	478	
MN	I	2986.861	2985.992	20	3.	148		CR	II	2988.91	2988.04	12	80.	340	
CR	I	2986.88	2986.01	25	11.	341		NE	II	2988.942	2988.070	10		1016	
BE	I	2986.933	2986.062	7	4.	333		NI	II	2988.947	2988.075	60		835	
NE	II	2986.933	2986.062	80		1016		FE	I	2988.985	2988.113	3		896	M
CO	I	2986.97	2986.10	0		603		NI	II	2989.038	2988.166	2		835	
CO	III	2987.00	2986.13	2	37.	673		F	II	2989.275	2988.403	150		538	
CR	I	2987.00	2986.13	15	11.	341		MN	II	2989.299	2988.426	5		328	
NI	II	2987.006	2986.135	1		835		FE	I	2989.3434	2988.4716	8	56.	896	
F	III	2987.041	2986.170	30		537		MN	II	2989.364	2988.491	2		328	
K	III	2987.07	2986.20	60	7.	488		F	II	2989.463	2988.591	120		538	
NE	V	2987.2	2986.3	91		885	M	CA	III	2989.502	2988.630	640	7.	64	
CU	II	2987.2058	2986.3346	100		612		CR	I	2989.507	2988.638	40	4.	341	
FE	II	2987.234	2986.366	1		645		NE	II	2989.755	2988.883	80		1016	
MN	II	2987.264	2986.393	5		328		FE	I	2989.811	2988.942	M	316.	605	
MN	I	2987.275	2986.407	2	41.	148		SC	I	2989.821	2988.952	10	11.	1015	
BE	I	2987.289	2986.418	3	4.	333		SC	II	2989.821	2988.952	10	34.	1015	
FE	I	2987.3270	2986.4557	15	11.	896		CA	I	2989.827	2988.955	2		1018	
CR	I	2987.334	2986.466	50	11.	341		CU	I	2989.880	2989.010	2		672	
BE	I	2987.48	2986.61	1	4.	333		CU	III	2989.942	2989.070	30		724	
FE	II	2987.486	2986.617	70	254.	488		FE	II	2989.948	2989.079	0	390.	488	
FE	I	2987.530	2986.650	4	200.	896		CR	II	2990.05	2989.18	70	80.	340	
MN	II	2987.550	2986.679	1		328		CA	III	2990.146	2989.274	520		64	
MN	II	2987.668	2986.797	0		328		V	II	2990.176	2989.306	15	87.	478	
CR	II	2987.74	2986.87	8	300.	340		FE	II	2990.237	2989.367	0	291.	488	
FE	II	2987.78	2986.91	D	291.	488		FE	I	2990.27	2989.39	1	85.	605	
MN	I	2987.920	2987.052	1	41.	148		CA	II	2990.29	2989.42	4	11.	1015	
CO	II	2987.94	2987.07	2		825		AS	III	2990.41	2989.54	5		404	
CO	I	2988.035	2987.166	15	11.	603		CO	I	2990.459	2989.590	15	13.	603	
CU	II	2988.1066	2987.2352	15		612		V	II	2990.464	2989.594	40	28.	478	
FE	I	2988.1617	2987.2902	30	30.	896		CO	VI	2990.6	2989.7			108	F
TI	II	2988.27	2987.40	1	28.	1015		FE	II	2990.601	2989.731	1	291.	488	
SE	III	2988.32	2987.45	30		587		MN	II	2990.605	2989.732	60		328	
CR	II	2988.39	2987.52	3	225.	340		V	II	2990.61	2989.74	10	87.	478	
FE	II	2988.411	2987.542	5	437.	488		CU	I	2990.872	2990.002	1		672	
ZN	II	2988.51	2987.64	10		154		TI	I	2990.90	2990.03	30	33.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	III	2990.91	2990.04	2	37.	673		K	III	2993.11	2992.24	90	7.	488	
MN	I	2991.005	2990.135	1		148		CU	II	2993.155	2992.283	2		612	
TI	II	2991.03	2990.16	10	123.	1015		NI	II	2993.215	2992.343	1		835	
V	I	2991.18	2990.31	1		1000		V	II	2993.248	2992.378	2	153.	478	
FE	I	2991.2635	2990.3913	40	316.	896		MN	II	2993.283	2992.410	20		328	
TI	I	2991.35	2990.48	30	33.	488		CR	II	2993.29	2992.42	10	80.	340	
CO	I	2991.38	2990.51	4		603		NE	V	2993.3	2992.4	48		885	M
AR	II	2991.715	2990.843	20		506		NE	I	2993.304	2992.432	60	8.	896	
V	I	2991.80	2990.93	8	58.	1000		NE	I	2993.329	2992.457	60	8.	488	
NI	II	2991.836	2990.964	2		835		V	III	2993.43	2992.56	2		325	
TI	I	2991.85	2990.98	30	33.	488		CR	II	2993.46	2992.59	7	300.	340	
AS	I	2991.86	2990.99	20	15.	480		CO	II	2993.463	2992.590	M 100.		825	
NI	II	2991.944	2991.071	20		835		NI	I	2993.465	2992.595	100.	25.	1015	
BR	II	2991.951	2991.081	1		606		C	II	2993.491	2992.618	800	8.	287	
NI	I	2991.976	2991.106	20	75.	488		CU	II	2993.542	2992.670	5		612	
NI	I	2991.976	2991.106	20	1.	488		V	I	2993.66	2992.79	00		1000	
V	I	2992.01	2991.14	2		1000		MN	II	2993.69	2992.82	3		328	
NE	II	2992.080	2991.207	30		1016		F	II	2993.693	2992.820	1		538	
P	III	2992.095	2991.222	4		936		P	V	2993.706	2992.833	4		524	
FE	II	2992.114	2991.244	1	252.	488		GA	II	2993.71	2992.84	10		652	
NE	II	2992.149	2991.276	50		1016		CR	II	2993.83	2992.96	10	321.	340	
MN	I	2992.257	2991.387	1		148		V	II	2993.86	2992.99	4		478	
CR	I	2992.273	2991.403	6	97.	341		CU	II	2993.897	2993.024	5		612	
FF	I	2992.504	2991.632	3		896		O	V	2993.90	2993.00	7		83	
V	II	2992.607	2991.737	3		478		CL	II	2993.984	2993.111	160	22.	613	
FE	I	2992.635	2991.762	15		896	M	MG	V	2994.0	2993.1			108	F
CU	I	2992.650	2991.780	15	55.	672		FE	I	2994.054	2993.181	5		896	M
TI	I	2992.66	2991.79	10	20.	488		CU	II	2994.1397	2993.2668	10		612	
FE	II	2992.687	2991.817	20	398.	488		MN	II	2994.176	2993.303	30		328	
CL	III	2992.69	2991.82	500	11.	43		FE	II	2994.237	2993.366	5	335.	488	
CR	I	2992.747	2991.877	30	11.	341		F	II	2994.320	2993.447	1		538	
CO	III	2992.76	2991.89	20	37.	673		CR	II	2994.41	2993.54	7	321.	340	
SC	IV	2992.850	2991.980	40		720		MN	II	2994.484	2993.611	50		328	
V	V	2992.9	2992.0			115		F	II	2994.591	2993.718	4		538	
O	III	2992.94	2992.07	10	10.	1015	P	FE	I	2994.666	2993.793	6		896	M
MN	I	2992.979	2992.190	5	3.	148		BR	III	2994.80	2993.93	300		586	
NI	I	2992.99	2992.12	10		602		F	II	2994.804	2993.931	4		538	
K	I	2992.991	2992.118	10	4.	1019		V	I	2994.88	2994.01	1		1000	
ZN	II	2993.03	2992.16	25		154		NE	II	2994.896	2994.023	80		563	
K	I	2993.095	2992.223	10	4.	1019		V	II	2994.92	2994.05	1		478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	I	2994.93	2994.06	25	4.	341		BR	II	2997.149	2996.278	10		606	
MN	II	2994.97	2994.11	1		328		MN	II	2997.21	2996.34	0		328	
CU	I	2995.00	2994.13	5		672		FE	I	2997.2587	2996.3850	10	134.	896	
F	II	2995.088	2994.143	10		538		MN	I	2997.341	2996.470	10	3.	148	
NE	I	2995.121	2994.250	3		723		V	I	2997.35	2996.48	6	82.	1000	
AL	II	2995.13	2994.26	10	14.	1015		O	III	2997.38	2996.51	25	10.	1015	
F	III	2995.156	2994.283	600		537		CO	I	2997.420	2996.549	1	77.	603	
MN	II	2995.27	2994.40	0		328		CR	I	2997.442	2996.571	40	11.	341	
FE	I	2995.3002	2994.4269	320	9.	896		MN	II	2997.477	2996.603	8		328	
NI	I	2995.331	2994.460	125	27.	1015		CA	I	2997.514	2996.641	2		1018	
V	I	2995.37	2994.50	1		1000		CL	II	2997.520	2996.646	310	22.	613	
FE	I	2995.3751	2994.5019	155	11.	896		V	II	2997.57	2996.70	3	28.	478	
GE	II	2995.38	2994.51	2		676		CO	I	2997.63	2996.76	2		603	
V	II	2995.411	2994.540	60	218.	478		AS	II	2997.685	2996.811	50		425	
V	I	2995.48	2994.61	2		1000		CU	II	2997.715	2996.841	8		612	
CR	II	2995.61	2994.74	20	80.	340		TI	II	2997.75	2996.88	M	28.	1015	
NE	II	2995.706	2994.833	80		1016		BR	II	2997.774	2996.902	250		606	
NE	II	2995.783	2994.909	50		563		CO	I	2997.816	2996.945	1		603	
CA	I	2995.831	2994.958	33	17.	1018		FE	III	2997.916	2997.042	5		288	
GE	II	2995.84	2994.97	10		676		V	I	2997.95	2997.08	3	116.	1000	
CR	I	2995.966	2995.094	30	3.	341		MN	II	2998.030	2997.156	30		328	
V	II	2995.993	2995.119	5		782		F	III	2998.082	2997.208	1		537	
CO	I	2996.021	2995.150	50	129.	603		FE	II	2998.089	2997.216	3		896	
NE	III	2996.1	2995.2	56		885	M	F	II	2998.13	2997.26	10		538	
NE	V	2996.1	2995.2	46		885	M	FE	II	2998.170	2997.298	220	335.	488	
CO	I	2996.119	2995.248	1		603		CA	I	2998.188	2997.314	25	17.	1018	
F	II	2996.134	2995.260	4		538		CU	I	2998.235	2997.364	450	17.	672	
MN	II	2996.181	2995.307	5		328		F	III	2998.399	2997.525	520		537	
CR	I	2996.29	2995.42	2	97.	341		O	III	2998.58	2997.71	10	10.	1015	
V	II	2996.32	2995.44	0		782		O	II	2998.61	2997.74	10		168	M
V	I	2996.488	2995.617	4	64.	1000		FE	II	2998.621	2997.749	0	292.	488	
FE	I	2996.549	2995.676	5		896	M	MN	I	2998.698	2997.826	6	42.	148	
TI	II	2996.62	2995.75	5		601		ZN	II	2998.7	2997.8	50		154	
FE	I	2996.712	2995.838	1	178.	605		V	I	2998.74	2997.87	5	116.	1000	
O	II	2996.81	2995.94	4		168	M	V	II	2998.816	2997.945	6	141.	478	
V	II	2996.870	2995.999	60	27.	478		NI	II	2998.928	2998.054	5		835	
NI	II	2996.881	2996.008	5		835		MN	I	2998.928	2998.056	1		148	
SC	IV	2996.945	2996.074	40		720		CO	I	2998.95	2998.08	3		603	
MN	I	2997.054	2996.183	2		148		CR	I	2998.989	2998.118	8	97.	341	
MN	II	2997.097	2996.223	20		328		S	III	2999.	2998.			107	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
AL	II	2999.03	2998.16	30	14.	1015		NI	II	3001.212	3000.337	2		835	
CO	VI	2999.1	2998.2			108	F	AR	II	3001.3198	3000.4450	110	72.	867	
FE	I	2999.139	2998.265	5		896	M	FE	I	3001.3255	3000.4508	110	56.	896	
CU	I	2999.255	2998.384	125	14.	672		CO	I	3001.418	3000.545	7	13.	603	
N	V	2999.30	2998.43	60	9.01	313		V	I	3001.438	3000.556	00		1000	
AS	II	2999.337	2998.463	1		425		CR	II	3001.52	3000.65	2	321.	340	
B	V	2999.36	2998.48			309		SC	IV	3001.627	3000.754	5		720	
MN	I	2999.472	2998.600	1		148		B	V	3001.63	3000.76			309	
V	I	2999.49	2998.62	4	64.	1000		FE	III	3001.714	3000.839	20	88.	288	
FE	II	2999.534	2998.662	0	422.	488		CA	I	3001.738	3000.863	33	17.	1018	
MN	II	2999.652	2998.778	10		328		TI	I	3001.741	3000.868	200	28.	1015	
CR	I	2999.655	2998.783	40	4.	341		CR	I	3001.75	3000.88	50	11.	341	
FE	II	2999.727	2998.855	20	252.	488		FE	I	3001.8226	3000.9477	280	9.	896	
CU	II	2999.767	2998.893	2		612		F	II	3001.89	3001.02	10		538	
CR	II	2999.88	2999.00	1	321.	340		V	I	3001.92	3001.05	1		1000	
NE	V	2999.9	2999.0	67		885	M	V	II	3002.075	3001.203	200	27.	478	
AR	II	2999.985	2999.110	20		506		CU	I	3002.11	3001.24	5		672	
FE	I	3000.066	2999.191	8		896	M	CR	I	3002.42	3001.55	1	97.	341	
V	I	3000.07	2999.20	12	58.	1000		FE	III	3002.461	3001.589	350	87.	188	
CR	II	3000.17	2999.30	8	94.	340		FE	III	3002.492	3001.617	650	9.	288	
AS	II	3000.174	2999.299	50		425		FE	I	3002.5304	3001.6554	60	506.	896	
NE	II	3000.332	2999.457	10		1016		NE	II	3002.5432	3001.6681	150	8.	389	
F	III	3000.347	2999.472	450		537		V	II	3002.627	3001.754	30	141.	478	
FE	I	3000.3863	2999.5118	220	30.	896		CR	I	3002.63	3001.76	1		341	
NE	II	3000.422	2999.547	10		1016		CU	I	3002.647	3001.774	2		672	
SE	III	3000.49	2999.62	30		587		V	I	3002.77	3001.90	10	116.	1000	
CA	I	3000.516	2999.641	25	17.	1018		F	III	3002.776	3001.901	250		537	
FE	I	3000.573	2999.699	10		896	M	V	II	3002.80	3001.93	2	43.	478	
CO	I	3000.586	2999.714	1		603		MN	II	3002.962	3002.087	20		328	
MG	III	3000.59	2999.71	3		2		FE	II	3003.074	3002.199	6		896	
BR	II	3000.656	2999.783	10		606		CU	I	3003.154	3002.281	10		672	
CU	II	3000.746	2999.871	6		612		FE	II	3003.203	3002.330	5	98.	1015	
TI	II	3000.79	2999.92		28.	1015		MN	I	3003.251	3002.378	2	42.	148	
CR	II	3000.83	2999.96	25	137.	340		CR	I	3003.31	3002.44	1		341	
NI	II	3000.852	2999.977	2		835		V	I	3003.321	3002.450	6		1000	
FE	II	3000.932	3000.059	110	276.	488		CO	II	3003.35	3002.48	2		825	
F	III	3000.971	3000.096	300		537		NI	I	3003.357	3002.484	500	24.	488	
AR	II	3000.983	3000.110	50	72.	506		MN	I	3003.489	3002.616	20	3.	148	
MN	III	3001.168	3000.293	1		301		CO	II	3003.49	3002.61	2		825	
SC	IV	3001.197	3000.324	5		720		V	I	3003.52	3002.65	8	47.	1000	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	II	3003.523	3002.650	750	78.	488	H	CU	I	3005.67	3004.73	1		672	
TI	I	3003.601	3002.728	30	29.	1015		V	I	3005.70	3004.82	10	47.	1000	
CR	I	3003.630	3002.757	2		341		CO	II	3005.73	3004.85	4		825	
O	II	3003.80	3002.93	4		168	M	F	II	3005.73	3004.85	25		538	
AR	II	3003.836	3002.961	60		506		CR	I	3005.93	3005.06	40	11.	341	
CL	II	3003.842	3002.967	13		613		NI	II	3005.958	3005.082	3		835	
F	II	3003.85	3002.98	60		538		MN	II	3006.018	3005.142	10		328	
CR	I	3003.86	3002.99	2		341		AR	III	3006.10	3005.23			108	F
FE	III	3003.86	3002.99	70	9.	288		FE	I	3006.181	3005.305	8	199.	896	
MN	II	3003.899	3003.022	5		328		O	II	3006.49	3005.62	10		168	M
FE	I	3003.9055	3003.0302	25	30.	896		V	II	3006.558	3005.682	8		782	
F	III	3003.946	3003.070	200		537		CO	I	3006.640	3005.766	3	77.	603	
MN	I	3003.953	3003.125	2		148		V	II	3006.687	3005.813	30	86.	478	
FE	III	3004.156	3003.282	1	89.	1015		F	II	3006.76	3005.88	10		538	
V	I	3004.161	3003.288	5		1000		CO	I	3006.847	3005.974	2		603	
TI	II	3004.24	3003.37	M	28.	1015		NI	V	3006.9	3006.0			922	F P
V	II	3004.334	3003.461	80	27.	478		CL	II	3006.935	3006.060	220	22.	613	P
NI	I	3004.496	3003.622	300	24.	488		O	II	3006.94	3006.07	10		168	P
NE	V	3004.6	3003.7	33		885	M	FE	III	3006.995	3006.122	40		188	
CR	I	3004.66	3003.79	7		341		FE	III	3007.018	3006.142	70	21.	288	
AS	II	3004.6947	3003.8192	340		425		CA	I	3007.072	3006.196	2		1018	
FE	I	3004.739	3003.863	4		896	M	V	I	3007.12	3006.24	5	116.	1000	
FE	II	3004.780	3003.907	1		645		V	I	3007.22	3006.34	6	75.	1000	
CR	II	3004.79	3003.92	35	94.	340		FE	I	3007.324	3006.448	4		896	M
F	II	3004.93	3004.06	40		538		V	II	3007.376	3006.502	20	141.	478	
CU	II	3004.934	3004.058	3		612		CO	I	3007.397	3006.523	1		603	
FE	I	3004.9913	3004.1157	6	199.	896		FE	I	3007.419	3006.543	5		896	M
FE	III	3005.01	3004.13	40	21.	288		FE	I	3007.474	3006.598	0		378	
V	V	3005.1	3004.2			115		MN	I	3007.503	3006.629	4	3.	148	
FE	II	3005.123	3004.249	20	276.	488		SI	I	3007.6150	3006.7387	50	0.0	608	
F	II	3005.18	3004.30	10		538		O	II	3007.69	3006.82	25		168	M
V	I	3005.21	3004.33	4	47.	1000		N	II	3007.706	3006.830	220	18.	200	
O	III	3005.22	3004.35	40	10.	1015		CR	I	3007.73	3006.86	1		341	
CL	II	3005.285	3004.409	145	22.	613		CA	I	3007.740	3006.863	40	17.	1018	
CR	II	3005.34	3004.47	3	88.	340		V	I	3007.78	3006.90	5	116.	1000	
AR	II	3005.362	3004.486	20		506		CL	II	3007.849	3006.973	170	53.	613	
FE	III	3005.364	3004.490	1	41.	1015		FE	III	3007.86	3006.99	20	21.	288	
NI	II	3005.410	3004.534	3		835		NE	II	3007.905	3007.029	10		1016	
FE	I	3005.505	3004.630	3	57.	896		V	II	3007.909	3007.035	1	141.	478	
CR	II	3005.64	3004.77	2	321.	340		FE	III	3007.93	3007.06	220		288	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NA	II	3007.946	3007.071	60	12.	1015		BR	II	3009.506	3008.630	100		606	
O	II	3007.95	3007.08	25	74.	168		CR	II	3009.54	3008.67	4	75.	340	
MN	I	3007.976	3007.102	7	42.	148		F	II	3009.56	3008.69	10		538	
FE	III	3008.02	3007.14	40		288		F	III	3009.588	3008.711	12		537	
FE	I	3008.0216	3007.1452	40	55.	896		CO	II	3009.65	3008.67	M		825	
FE	III	3008.10	3007.22	110	116.	288		O	III	3009.67	3008.79	25	10.	1015	
FE	III	3008.152	3007.275	650		288		S	III	3009.69	3008.82	0		598	
FE	I	3008.1588	3007.2823	140	11.	896		MN	I	3009.696	3008.822	4	3.	148	
V	II	3008.170	3007.296	15	27.	478		O	II	3009.71	3008.83	25		168	
AS	II	3008.177	3007.300	50		425		CO	II	3009.72	3008.84	4		825	
CO	II	3008.18	3007.30	3		825		FE	I	3009.9702	3009.0933	10	198.	896	
CO	II	3008.24	3007.37	5		825		V	III	3009.99	3009.11	0		325	
NA	III	3008.316	3007.441	40	1.	693		ZN	II	3010.0	3009.1	10		154	
FE	III	3008.338	3007.461	160		288		NA	II	3010.013	3009.138	40	13.	693	
P	III	3008.359	3007.483	1		936		CR	I	3010.03	3009.16	2		341	
TI	I	3008.362	3007.487	40		1015		CA	I	3010.082	3009.205	33	17.	1018	
CO	I	3008.47	3007.59	1		603		MN	I	3010.253	3009.378	5		148	
FE	III	3008.477	3007.600	110		288		NI	II	3010.310	3009.433	3		835	
MN	I	3008.524	3007.650	80	35.	148		FE	I	3010.4460	3009.5689	110	30.	896	
O	II	3008.65	3007.78	25	74.	168	p	V	I	3010.54	3009.66	1		1000	
FE	III	3008.670	3007.793	285	10.	288		O	II	3010.57	3009.69	4	74.	168	
CU	I	3008.68	3007.80	1		672		AS	II	3010.628	3009.751	5		425	
NE	II	3008.709	3007.832	80		1016		SC	IV	3010.716	3009.841	20		720	
F	II	3008.76	3007.88	1		538		O	II	3010.72	3009.84	4	74.	168	
NE	II	3008.809	3007.933	70		1016		FE	III	3010.874	3009.998	1	41.	1015	
CR	I	3008.819	3007.945	2		341		CO	I	3010.88	3010.01	0		603	
CR	II	3008.85	3007.98	6	321.	340		AR	III	3010.90	3010.02	100		79	
MN	I	3008.924	3008.050	3		148		AS	II	3010.917	3010.040	30		425	
CU	I	3008.99	3008.12	5		672		FE	II	3011.051	3010.174	4	181.	896	
FE	I	3009.0157	3008.1390	220	9.	896		CR	I	3011.09	3010.22	2		341	
F	II	3009.02	3008.14	4		538		AS	II	3011.245	3010.368	100		425	
CR	III	3009.11	3008.26	2		490		TI	I	3011.30	3010.42	J	170.	1015	
MN	I	3009.132	3008.258	40	35.	148		NE	II	3011.328	3010.451	10		1016	
CR	II	3009.17	3008.30	6	174.	340		CU	II	3011.469	3010.592	20		612	
TI	II	3009.197	3008.322	2	85.	1015		CR	II	3011.51	3010.64	10		340	
O	II	3009.23	3008.35	4	74.	168		BR	II	3011.589	3010.713	1		606	
TI	III	3009.3	3008.4			227	F p	CU	I	3011.713	3010.838	450	14.	672	
V	II	3009.382	3008.508	15	141.	478		V	I	3011.72	3010.84	1		1000	
FE	III	3009.388	3008.511	160	9.	288		CO	III	3011.79	3010.92	25	37.	673	
V	II	3009.485	3008.610	70	26.	478		CR	II	3011.80	3010.92	4	321.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	3011.80	3010.93	0		328		BR	II	3014.591	3013.714	1		606	
FE	III	3011.936	3011.060	1	31.	1015		NI	II	3014.592	3013.713	5		935	
CR	I	3011.984	3011.109	7		341		AS	II	3014.596	3013.718	60		425	
MN	I	3012.040	3011.165	50	35.	148		HE	I	3014.6	3013.7	100		126	
V	II	3012.133	3011.258	1		478		NI	V	3014.6	3013.7			922	F P
MN	I	3012.251	3011.376	70	35.	148		CR	I	3014.60	3013.72	40	26.	341	
V	I	3012.28	3011.40	2		1000		FE	II	3014.679	3013.802	0	124.	1015	
CR	II	3012.29	3011.42	7	55.	340		MN	I	3014.809	3013.933	1		148	
FE	I	3012.3592	3011.4817	50	316.	896		NE	II	3014.853	3013.975	20		1016	
BR	II	3012.405	3011.529	100		606		FE	I	3014.9839	3014.1057	3	458.	896	
V	I	3012.46	3011.58	1		1000		FE	I	3015.0514	3014.1732	4	31.	896	
AS	II	3012.623	3011.745	30		425		V	I	3015.07	3014.19	4		1000	
FE	I	3012.761	3011.883	2	135.	378		V	I	3015.21	3014.33	15	116.	1000	
GA	II	3012.78	3011.90	30		652		O	II	3015.25	3014.38	4		168	P
MN	II	3012.85	3011.97	10		328		AR	II	3015.3604	3014.4822	80	72.	867	
CR	II	3012.88	3012.01	2	87.	340		CU	II	3015.4228	3014.5446	75		612	
NI	I	3012.880	3012.004	375	41.	1015		MN	I	3015.541	3014.666	70	35.	148	
CU	I	3012.880	3012.005	160		672		CR	I	3015.632	3014.756	50	27.	341	
V	II	3012.895	3012.020	30	43.	478		V	II	3015.699	3014.822	100	27.	478	
NE	I	3013.015	3012.137	25		896		CU	I	3015.723	3014.848	30	45.	672	
CU	II	3013.155	3012.277	2		612		MN	II	3015.726	3014.848	20		328	
CR	II	3013.21	3012.33	3	137.	340		SI	II	3015.798	3014.920	3	14.	678	
FE	I	3013.320	3012.443	5		896	M	CR	I	3015.908	3014.932	75	27.	341	
CR	II	3013.35	3012.47	5		340		V	I	3015.848	3014.972	1		1000	
FE	II	3013.47	3012.59	D	276.	488		MN	I	3016.059	3015.183	1		148	
O	II	3013.70	3012.82	4	74.	168		CR	I	3016.073	3015.197	50	27.	341	
FE	III	3013.723	3012.847	2	10.	1015		NI	II	3016.116	3015.238	5		835	
MN	I	3013.729	3012.854	8	3.	148		FE	III	3016.139	3015.260	160	9.	288	
CU	I	3013.741	3012.775	1		672		SC	I	3016.241	3015.364	8	10.	1015	
NE	I	3013.837	3012.959	30		896		F	III	3016.275	3015.396	30		537	
CR	I	3013.908	3013.033	20	26.	341		NA	II	3016.276	3015.398	90	5.	693	
SI	III	3013.969	3013.091	40	10.	768		CR	II	3016.39	3015.51	50	87.	340	
V	II	3013.977	3013.102	80	26.	478		CO	I	3016.562	3015.686	3	76.	603	
FE	III	3014.045	3013.167	1000	9.	288		S	II	3016.6	3015.7	200		322	
CU	II	3014.1676	3013.2897	2		612		MN	II	3016.733	3015.854	15		328	
O	II	3014.21	3013.33	40	56.	168	P	MN	I	3016.791	3015.915	2		148	
CU	I	3014.385	3013.510	2		672		FE	I	3016.7991	3015.9205	6	198.	896	
NI	II	3014.445	3013.567	5		835		NI	II	3016.826	3015.947	20		835	
CO	I	3014.467	3013.592	8	10.	603		O	II	3016.84	3015.96	4	72.	168	P
MN	II	3014.500	3013.622	20		328		SI	II	3016.859	3015.980	3	14.	678	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	3016.86	3015.98	10	42.	478		CR	I	3019.704	3018.827	40	26.	341	
BR	II	3016.862	3015.984	50		606		CL	II	3019.724	3018.844	150	22.	613	
V	II	3017.02	3016.14	15	26.	478		V	II	3019.84	3018.96	3		478	
AR	IV	3017.03	3016.15	50	1.	1015		FE	I	3019.8620	3018.9826	60	30.	896	
V	I	3017.05	3016.17	20	58.	1000		MN	I	3019.894	3019.018	2		148	
FE	I	3017.0602	3016.1815	12	30.	896		V	II	3019.97	3019.09	3	86.	478	
CU	I	3017.12	3016.24	0		672		NI	I	3020.021	3019.143	100	11.	1015	
CR	I	3017.17	3016.29	3		341		FE	I	3020.113	3019.234	25		896	M
V	I	3017.268	3016.392	1		1000		FE	I	3020.1693	3019.2898	4	199.	896	
MN	I	3017.330	3016.454	100	35.	148		BE	I	3020.212	3019.333	40		333	
BR	II	3017.405	3016.528	350		606		SC	I	3020.228	3019.350	10	10.	1015	
AS	II	3017.4201	3016.5414	60		425		FE	I	3020.261	3019.381	20		896	M
V	II	3017.652	3016.775	120	27.	478		CR	I	3020.27	3019.39	3		341	
NI	II	3017.875	3016.996	20		835		BE	I	3020.371	3019.492	25		333	
TI	II	3018.065	3017.187	50	85.	1015		BE	I	3020.406	3019.526	25		333	
CO	I	3018.131	3017.254	3	78.	603		NI	II	3020.459	3019.580	20		835	
FE	I	3018.138	3017.259	3		896	M	BE	I	3020.479	3019.599	15		333	
NE	II	3018.188	3017.310	120	8.	1016		FE	I	3020.532	3019.652	5		896	M
FE	III	3018.19	3017.31	20		288		MN	II	3020.597	3019.717	40		328	
NE	I	3018.235	3017.356	80		896		FE	I	3020.684	3019.804	30		896	M
FE	I	3018.297	3017.418	4		896	M	MN	II	3020.802	3019.923	170		328	
NI	II	3018.410	3017.531	10		835		SI	I	3020.8840	3020.0044	75	0.0	608	
CO	I	3018.424	3017.548	15	11.	603		FE	II	3020.889	3020.009	60	110.	896	
CR	I	3018.468	3017.591	100	27.	341		CA	I	3021.112	3020.232	2		1018	
FE	I	3018.5062	3017.6272	60	9.	896		V	II	3021.13	3020.25	4		478	
O	III	3018.51	3017.63	60	10.	1015		SE	III	3021.15	3020.27	10		587	
MN	II	3018.539	3017.659	20		328		MN	II	3021.365	3020.485	30		328	
CR	II	3018.66	3017.78	10	95.	340		FE	I	3021.3704	3020.4907	220	9.	896	
FE	I	3018.735	3017.856	5		896	M	MN	II	3021.490	3020.610	15		328	
NI	I	3018.825	3017.947	5	74.	488		F	II	3021.513	3020.630	1		538	
SI	II	3018.91	3018.04	2	14.	678		FE	I	3021.5189	3020.6391	380	9.	896	
FE	I	3018.928	3018.047	4		896	M	BR	III	3021.53	3020.65	200		586	
CU	I	3018.97	3018.09	2		672		V	II	3021.53	3020.65	6	26.	478	
FE	I	3019.0151	3018.1359	5	199.	896		CO	I	3021.73	3020.85	2		603	
ZN	I	3019.234	3018.355	60	5.	830		NI	II	3021.782	3020.902	10		835	
CO	III	3019.29	3018.41	3		673		CO	I	3021.84	3020.96	1		603	
CR	I	3019.369	3018.492	50	26.	341		MN	II	3021.847	3020.967	20		328	
MN	II	3019.431	3018.552	2		328		NI	II	3021.895	3021.015	20		835	
CA	I	3019.474	3018.595	2		1018		FE	I	3021.9526	3021.0727	240	9.	896	
FE	III	3019.668	3018.789	160	10.	288		MN	II	3021.98	3021.10	1		328	

SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM	VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	3022.15	3021.27	5	328		FE	II	3024.739	3023.859	1	84.	1015
AS	II	3022.159	3021.279	0	425		TI	II	3024.74	3023.86	12	126.	1015
NI	XI	3022.2	3021.3		806	H	V	II	3024.760	3023.882	20	41.	478
FE	I	3022.211	3021.331	50	896	M	FE	III	3024.764	3023.883	220	10.	288
FE	II	3022.286	3021.407	5	488		MN	I	3024.871	3023.993	1		148
					251.								
NI	II	3022.295	3021.415	3	835		F	II	3024.88	3024.00	4		538
CU	I	3022.421	3021.544	170	672		FE	I	3024.9131	3024.0325	220	11.	896
SI	II	3022.43	3021.55	20	678	14.	AR	III	3024.93	3024.05	120	4.	79
CR	I	3022.453	3021.576	200	341	27.	AL	II	3024.99	3024.11	10	13.	1015
MN	I	3022.551	3021.673	2	148		CU	II	3025.062	3024.182	3		612
MN	II	3022.602	3021.722	100	328		FE	I	3025.164	3024.283	10		896
FE	I	3022.629	3021.749	25	896	M	CR	I	3025.237	3024.359	125	26.	341
V	I	3022.66	3021.78	6	1000	75.	O	III	3025.24	3024.36	4	10.	1015
FE	III	3022.88	3022.00	40	288	76.	CO	I	3025.278	3024.400	1	52.	603
V	II	3023.024	3022.146	4	478	86.	ZN	II	3025.33	3024.45	15		154
F	II	3023.17	3022.29	1	538		MN	II	3025.37	3024.49	15		328
FE	I	3023.211	3022.330	6	896	M	O	III	3025.45	3024.57	40	4.	1015
CO	I	3023.232	3022.355	3	603		FE	I	3025.463	3024.582	3		896
NI	II	3023.287	3022.407	10	835		CR	I	3025.567	3024.689	12	117.	341
V	II	3023.45	3022.57	40	478	26.	P	III	3025.647	3024.766	10		936
F	II	3023.47	3022.59	1	538		FE	I	3025.679	3024.798	5		896
CU	I	3023.486	3022.608	170	672		FE	I	3025.752	3024.871	5		896
CO	II	3023.49	3022.61	3	825		CR	II	3025.78	3024.90	3		340
MN	I	3023.621	3022.743	110	148	35.	CO	III	3025.80	3024.92	2		673
V	I	3023.65	3022.77	10	1000		CA	I	3025.817	3024.937	3		1018
FE	I	3023.654	3022.773	4	896	M	V	II	3025.860	3024.981	50	85.	478
AL	II	3023.68	3022.80	5	1015	13.	CU	I	3025.872	3024.994	100		672
TI	II	3023.699	3022.820	15	1015	126.	NI	II	3025.935	3025.054	2		835
CL	II	3023.795	3022.915	168	613	57.	MN	II	3026.079	3025.198	40		328
F	II	3023.80	3022.92	1	538		AS	II	3026.114	3025.233	1		425
CO	I	3023.99	3023.11	0	603		FE	I	3026.161	3025.280	15	29.	896
FE	I	3024.072	3023.192	5	896	M	NI	II	3026.516	3025.635	30		835
MN	II	3024.16	3023.28	2	328		FE	I	3026.5194	3025.6384	125	198.	896
O	III	3024.33	3023.45	60	1015	4.	V	II	3026.56	3025.68	1	75.	478
ZN	II	3024.41	3023.53	10	154		F	II	3026.60	3025.72	1		538
FE	I	3024.461	3023.583	M	605	103.	O	II	3026.66	3025.78	4	84.	168
CO	I	3024.468	3023.590	1	603		FE	I	3026.7235	3025.8425	220	9.	896
N	II	3024.549	3023.668	70	200	35.	CR	I	3026.75	3025.87	3		341
CO	VI	3024.6	3023.7		108		FF	III	3027.010	3026.129	20		288
CR	I	3024.66	3023.78	1	341	F	CC	I	3027.252	3026.373	6	77.	603

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	3027.26	3026.38	7		340		BR	II	3029.838	3028.957	250		606	
FE	I	3027.3426	3026.4614	30	30.	896		NI	II	3029.912	3029.030	2		835	
CR	II	3027.52	3026.64	100	95.	340		MN	II	3029.925	3029.043	140	10.	328	
F	II	3027.53	3026.65	4		538		NA	II	3029.947	3029.066	90		693	
AR	II	3027.626	3026.745	50	120.	506		LI	II	3030.003	3029.121	60		307	
AS	II	3027.630	3026.748	0		425		LI	II	3030.018	3029.136	60		307	
AL	II	3027.66	3026.78	15	13.	1015		CR	I	3030.043	3029.165	50	26.	341	
CR	II	3027.74	3026.86	20	41.	340		FE	I	3030.1156	3029.2337	8	56.	896	
MN	II	3027.74	3026.86	10		328		NI	I	3030.174	3029.293	15	74.	488	
P	II	3027.785	3026.904	15		496		MN	II	3030.329	3029.446	60		328	
NE	I	3027.79	3026.91	8		1029	Q	V	II	3030.44	3029.56	7	26.	478	
FE	III	3027.888	3027.006	160	21.	288		CU	I	3030.48	3029.60	2		672	
NE	II	3027.8972	3027.0159	100.	8.	389		FE	II	3030.562	3029.681	0	124.	1015	
SE	III	3027.92	3027.04	50		14		NE	II	3030.595	3029.713	60		1016	
V	I	3027.95	3027.07	2		1000		TI	II	3030.611	3029.730	35	85.	1015	
AR	III	3028.04	3027.16	50	4.	79		CL	II	3030.882	3030.000	1		613	
AR	III	3028.04	3027.16	50	4.	79		SI	II	3030.882	3030.000	100	14.	678	
NI	II	3028.148	3027.267	1		835		FE	I	3031.0306	3030.1484	80	198.	896	
NI	II	3028.265	3027.383	50		835		CR	I	3031.13	3030.25	100	27.	341	
CU	II	3028.270	3027.388	1		612		CU	I	3031.138	3030.258	10		672	
F	II	3028.30	3027.42	1		538		NE	I	3031.204	3030.322	4		896	
FE	III	3028.373	3027.491	20	10.	288		NI	II	3031.272	3030.390	2		835	
V	II	3028.479	3027.600	15	85.	478		FE	I	3031.4856	3030.6033	4	145.	896	
FE	III	3028.65	3027.76	1		288		SC	I	3031.651	3030.769	3	10.	1015	
CU	I	3028.70	3027.82	5		672		FE	I	3031.669	3030.787	10	459.	896	
MN	I	3028.715	3027.836	1		148		NE	II	3031.676	3030.794	100	17.	1016	
O	IV	3028.92	3028.04	120	5.	86		V	I	3031.81	3030.93	5		1000	
V	II	3028.922	3028.042	50	85.	478		NE	II	3031.813	3030.930	10		1016	
CR	II	3029.00	3028.15	75	18.	340		V	I	3031.888	3031.009	10	74.	1000	
CO	I	3029.063	3028.184	1		603		MN	II	3031.921	3031.038	170		328	
CO	II	3029.066	3028.184	M		825		BR	II	3032.041	3031.160	0		606	
NE	I	3029.30	3028.42	2		1029	Q	FE	I	3032.0969	3031.2144	60	198.	896	
CA	III	3029.468	3028.586	360	7.	64		CO	I	3032.168	3031.288	2		603	
NE	II	3029.581	3028.700	90	8.	1016		FE	I	3032.206	3031.324	5		896	
AR	II	3029.603	3028.721	30	84.	506		MN	II	3032.208	3031.324	50		328	M
O	II	3029.64	3028.76	4	73.	168		CR	I	3032.225	3031.346	50	27.	341	
P	II	3029.68	3028.80	0		431		SE	III	3032.36	3031.48	1		587	
NE	II	3029.744	3028.862	120	4.	1016		CR	I	3032.378	3031.498	20	117.	341	
SC	IV	3029.781	3028.900	20		720		CO	I	3032.39	3031.51	0		603	
AR	II	3029.7956	3028.9137	140	84.	867		CR	II	3032.51	3031.63	3	87.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	I	3032.5161	3031.6336	25	30.	896	M	NE	II	3035.343	3034.460	120	8.	1016	
FE	I	3032.600	3031.718	3		896		FE	I	3035.3675	3034.4842	60	57.	896	
NI	II	3032.618	3031.735	20		835		F	III	3035.408	3034.525	300	3.	537	
NI	I	3032.752	3031.870	50	11.	1015		CR	II	3035.42	3034.54	25	94.	340	
MN	II	3032.89	3032.00	10		328		CA	I	3035.426	3034.543	3		1018	
O	II	3032.97	3032.09	25	83.	168		CU	I	3035.436	3034.555	3		672	
V	II	3033.067	3032.187	3	75.	478		BR	II	3035.541	3034.658	0		606	
B	II	3033.140	3032.258	250		532		CO	II	3035.58	3034.70	M		825	
V	II	3033.215	3032.332	0		782		FE	II	3035.595	3034.712	0	84.	1015	
NI	II	3033.341	3032.458	5	3.	835		SI	III	3035.615	3034.732	60	10.	768	
O	II	3033.35	3032.47	10	83.	168		K	I	3035.644	3034.761	40	3.	1019	
CR	II	3033.53	3032.65	4		340		MN	II	3035.690	3034.807	100	21.	328	
SI	III	3033.55	3032.66	25	10.1	768		K	I	3035.803	3034.920	40.	3.	1019	
AS	I	3033.73	3032.85	40	15.	480		CR	II	3035.87	3034.99	20	137.	340	
SI	II	3033.73	3032.85	2	14.	678		NI	II	3036.001	3035.117	20		835	
V	III	3033.80	3032.92	1		325		V	II	3036.02	3035.14	3	245.	478	
CR	II	3033.82	3032.94	50	15.	340		MN	II	3036.235	3035.350	170		328	
FE	I	3033.9831	3033.1002	5	131.	896		O	III	3036.31	3035.43	40	4.	1015	
MN	II	3034.12	3033.24	2		328		CR	I	3036.43	3035.55	2		341	
MN	I	3034.204	3033.324	1		148		FE	I	3036.621	3035.737	5		896	M
FE	I	3034.278	3033.395	5		896	M	ZN	I	3036.661	3035.777	70	5.	830	
V	II	3034.326	3033.445	200	123.	478		FE	III	3036.672	3035.788	20	30.	288	
FE	II	3034.327	3033.445	2	181.	1015		P	III	3036.793	3035.909	1		936	
CU	I	3034.361	3033.480	2		672		NE	II	3036.8055	3035.9219	100	17.	389	
AR	II	3034.3913	3033.5083	180	15.	867		V	II	3036.95	3036.07	2	40.	478	
BR	III	3034.40	3033.52	85		586		CU	I	3036.982	3036.101	500	17.	672	
MN	II	3034.457	3033.574	100	21.	328		NI	V	3037.0	3036.1			922	F P
SE	III	3034.46	3033.58	10		587		FE	I	3037.007	3036.123	5		896	M
V	I	3034.63	3033.75	1		1000		AS	II	3037.091	3036.208	1		425	
V	II	3034.702	3033.821	260	34.	478		CO	II	3037.10	3036.22	M		825	
CR	II	3034.94	3034.06	5	74.	340		CL	II	3037.243	3036.359	3		613	
CO	I	3034.97	3034.08	1		603		NE	II	3037.510	3036.626	80		1016	
MN	II	3035.032	3034.149	40		328		CR	I	3037.588	3036.707	6		341	
CR	I	3035.071	3034.191	50		341		TI	II	3037.667	3036.784	1	78.	1015	
V	IV	3035.15	3034.27	10		829		AR	II	3037.771	3036.887	20		506	
O	III	3035.20	3034.32	1	20.	1015		AR	III	3037.84	3036.96	30		79	
NE	II	3035.223	3034.340	60		1016		FE	II	3037.848	3036.964	40	181.	896	
MN	I	3035.288	3034.408	1		148		CR	I	3037.930	3037.049	75	27.	341	
V	II	3035.29	3034.41	4		478		NA	II	3037.951	3037.068	60		693	
CO	I	3035.313	3034.432	6	12.	603		SI	III	3038.171	3037.287	100	10.	768	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
V	I	3038.253	3037.372	2		1000		NI	II	3040.405	3039.521	10		835	
FE	I	3038.2726	3037.3887	280	9.	896		CU	I	3040.426	3039.488	10		672	
CU	II	3038.492	3037.608	2		612		MN	II	3040.435	3039.550	125	10.	328	
NE	II	3038.6039	3037.7199	100	8.	389		CO	I	3040.444	3039.563	3	52.	603	
FE	I	3038.6633	3037.7793	50	31.	896		FE	III	3040.460	3039.576	20		208	
CU	II	3038.685	3037.801	10		612		NE	II	3040.4702	3039.5857	100	17.	389	
NI	I	3038.819	3037.935	300	25.	1015		AS	II	3040.519	3039.634	0		425	
P	III	3038.821	3037.937	40		936		C	II	3040.599	3039.714	25	29.	287	
CL	II	3038.844	3037.960	200	53.	613		CR	I	3040.61	3039.73	15	117.	341	
AR	IV	3038.86	3037.98	60	2.	1015		F	III	3040.630	3039.746	450	3.	537	
V	II	3038.88	3038.00	2	246.	478		SC	I	3040.64	3039.76	0		1028	
CR	II	3038.92	3038.04	8	154.	340		V	II	3040.649	3039.767	2	153.	478	
V	I	3038.94	3038.06	1		1000		CR	I	3040.65	3039.77	25	26.	341	
MN	II	3038.976	3038.092	155		328		SC	II	3040.80	3039.92	10	47.	1015	
CO	I	3039.184	3038.302	2		603		D	II	3040.89	3040.01	4	72.	1015	P
FE	I	3039.198	3038.314	5		896		NI	II	3040.905	3040.020	5		835	
CR	II	3039.39	3038.51	4	41.	340		V	I	3041.01	3040.13	1		1000	
MN	II	3039.392	3038.507	140		328		CR	II	3041.06	3040.18	8		340	
V	II	3039.402	3038.520	30	96.	478		FE	I	3041.3119	3040.4271	50	30.	896	
MN	I	3039.498	3038.616	3		148		CU	I	3041.350	3040.467	1		672	
FE	I	3039.537	3038.653	4		896		C	II	3041.397	3040.512	10	29.	287	
SE	II	3039.54	3038.66	500	18.	468	M	TI	III	3041.398	3040.513	1		227	
TI	II	3039.590	3038.706	6	85.	1015		MN	I	3041.482	3040.600	100	34.	148	
V	I	3039.591	3038.710	10		1000		CO	I	3041.694	3040.812	1	50.	603	
FE	II	3039.661	3038.777	3	84.	1015		FE	II	3041.713	3040.829	0	123.	1015	
CR	II	3039.68	3038.80	4		340		CR	I	3041.719	3040.837	100	27.	341	
MN	II	3039.776	3038.892	40		328		CR	II	3041.79	3040.91	70	65.	340	
C	III	3039.790	3038.910	5	25.	34		SI	III	3041.818	3040.933	130	10.	768	
GE	I	3039.9515	3039.0671	1000	2.	7		FE	I	3041.847	3040.962	4		896	M
CO	VI	3040.0	3039.1			108	F	CA	I	3041.942	3041.057	2		1018	
MN	I	3040.050	3039.169	1		148		BR	IV	3042.07	3041.18	100		574	
CA	I	3040.070	3039.186	1		1018		MN	I	3042.103	3041.220	30	34.	148	
MN	II	3040.076	3039.192	30		328		NI	II	3042.146	3041.261	5		835	
SI	II	3040.09	3039.21	3	17.	678		AL	II	3042.163	3041.278	150	28.	1015	
F	III	3040.134	3039.250	520	3.	537		SE	II	3042.19	3041.31	500	20.	468	
V	I	3040.186	3039.305	1		1000		V	II	3042.30	3041.42	60	40.	478	
CR	II	3040.20	3039.32	4		340		MN	I	3042.366	3041.483	1		148	
FE	I	3040.2027	3039.3182	4	199.	896		SI	II	3042.458	3041.573	20	17.	678	
O	II	3040.33	3039.45	4	72.	168		NI	II	3042.504	3041.619	5		835	
V	I	3040.34	3039.46	1		1000		CU	I	3042.51	3041.62	0		672	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	I	3042.5222	3041.6372	80	56.	896		V	I	3044.437	3043.553	50	17.	1000	
CU	II	3042.5638	3041.6788	65		612		V	III	3044.559	3043.673	5		325	
CR	II	3042.61	3041.73	50	95.	340		SI	II	3044.578	3043.692	100	17.	678	
FE	I	3042.6234	3041.7384	50	30.	896		CR	I	3044.597	3043.714	3		341	
V	I	3042.71	3041.83	8		1000		MN	I	3044.651	3043.768	20	34.	148	
BR	III	3042.81	3041.93	30		586		TI	II	3044.736	3043.851	5	78.	1015	
FE	I	3042.9043	3042.0192	15	30.	896		SI	II	3044.74	3043.85	10	17.	678	
NI	II	3042.934	3042.049	2		835		CR	II	3044.77	3043.89	18	48.	340	
SI	II	3043.076	3042.191	30	14.	678		SI	III	3044.817	3043.932	80	8.0	768	
CR	I	3043.12	3042.24	1		341		CO	I	3044.887	3044.004	30	11.	603	
CL	II	3043.141	3042.256	23		613		CU	I	3044.911	3044.028	20	45.	672	
V	II	3043.15	3042.27	80	40.	478		CR	I	3044.92	3044.04	1		341	
MN	I	3043.202	3042.319	3		148		MN	II	3044.95	3044.06	20		328	
MN	II	3043.3	3042.4			909	F	NE	II	3044.9727	3044.0868	100	17.	389	
SE	III	3043.33	3042.45	1		587		CR	II	3045.11	3044.23	10	154.	340	
AR	II	3043.348	3042.463	10		506		FE	I	3045.208	3044.323	3		896	M
CO	I	3043.364	3042.481	8	10.	603		MN	II	3045.3	3044.5			909	F
MN	II	3043.5	3042.6			909	F	FE	III	3045.324	3044.438	5		1015	
FE	I	3043.5497	3042.6644	25	30.	896		MN	I	3045.449	3044.566	220	15.	148	
V	I	3043.555	3042.672	15		1000		FE	II	3045.729	3044.843	5	98.	1015	
MN	I	3043.617	3042.734	30	34.	148		AS	II	3045.812	3044.926	2		425	
CR	II	3043.67	3042.79	25	47.	340		V	III	3045.82	3044.93	15		325	
F	III	3043.687	3042.802	800		537		V	I	3045.821	3044.938	50	17.	1000	
FE	I	3043.728	3042.843	4		896	M	NI	I	3045.892	3045.006	50	12.	1015	
CU	II	3043.7410	3042.8556	5		612		CL	II	3045.908	3045.023	105	21.	613	
MN	I	3043.788	3042.905	2		148		CU	I	3045.908	3045.025	1		672	
V	II	3043.79	3042.90	1		782		SI	III	3045.962	3045.076	40	8.0	768	
NI	II	3043.800	3042.915	3		835		FE	I	3045.9642	3045.0783	40	29.	896	
P	IV	3043.867	3042.980	4		937		TI	II	3045.971	3045.085	5		1015	
O	III	3043.91	3043.02	60	4.	1015		AS	II	3045.982	3045.096	50		425	
V	III	3043.945	3043.059	5		325		FE	II	3046.196	3045.313	0	179.	645	
FE	III	3043.952	3043.067	2	91.	1015		CR	I	3046.207	3045.324	2		341	
V	I	3044.007	3043.123	50	17.	1000		FE	I	3046.389	3045.503	3		896	M
MN	II	3044.014	3043.128	125	21.	328		CR	II	3046.41	3045.52	4	48.	340	
MN	I	3044.021	3043.139	15	34.	148		NE	II	3046.4418	3045.5558	100	8.	389	
FE	II	3044.20	3043.31		138.	1015	P	MN	I	3046.473	3045.590	80	34.	148	
MN	I	3044.237	3043.355	60	34.	148		FE	I	3046.4734	3045.5874	12	198.	896	
FE	III	3044.324	3043.439	1	91.	1015		NA	II	3046.476	3045.590	60	11.	693	
CR	I	3044.34	3043.46	2		341		CR	II	3046.50	3045.62	3		340	
V	II	3044.42	3043.54	40	40.	478		SC	II	3046.600	3045.714	15	37.	1015	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CA	I	3046.626	3045.740	3		1018		O	II	3048.62	3047.74	1	82.	168	P
SI	II	3046.65	3045.77	10	17.	678		CR	II	3048.65	3047.77	25	15.	340	
MN	I	3046.688	3045.804	30	34.	148		CU	I	3048.678	3047.795	1		672	
FE	III	3046.763	3045.877	40	76.	288		AS	II	3048.725	3047.838	1		425	
CA	I	3046.775	3045.889	2		1018		CR	I	3048.76	3047.88	6		341	
NE	I	3046.835	3045.949	7		723		AR	II	3048.908	3048.021	20		508	
AR	II	3046.965	3046.079	50		506		CO	I	3048.992	3048.108	2	77.	603	
CR	I	3046.98	3046.10	2		341		V	II	3049.097	3048.214	200	123.	478	
FE	III	3047.082	3046.194	5		288		NE	IV	3049.1	3048.2	35		885	M
SE	II	3047.12	3046.24	150	18.	468		AS	II	3049.156	3048.270	150		425	
CR	II	3047.15	3046.27	1		340		GE	II	3049.19	3048.30	10		676	
MN	II	3047.158	3046.271	125	10.	328		SI	II	3049.19	3048.30	50	17.	678	
SI	III	3047.17	3046.284	15	8.0	768		MN	II	3049.28	3048.39	3		328	
V	III	3047.214	3046.328	10		325		FE	I	3049.339	3048.452	6		896	M
FE	I	3047.223	3046.337	5		896	M	V	II	3049.53	3048.65	4	67.	478	
FE	III	3047.285	3046.399	00	78.	1015		C	II	3049.580	3048.690	1	43.01	287	
BE	II	3047.410	3046.524	7		332		TI	II	3049.653	3048.766	6	78.	1015	
CR	I	3047.45	3046.57	3		341		AR	II	3049.671	3048.784	20		506	
MN	I	3047.471	3046.588	4		148		F	III	3049.743	3048.856	200		537	
FE	II	3047.561	3046.675	1	179.	1015		MN	I	3049.744	3048.860	40	34.	148	
TI	II	3047.571	3046.685	30	47.	1015		FE	I	3049.763	3048.876	5		896	M
BE	II	3047.577	3046.691	25		332		CO	I	3049.772	3048.888	12	11.	603	
FE	III	3047.60	3046.71	20	92.	288		V	II	3049.775	3048.891	70	40.	478	
FE	I	3047.703	3046.819	M	315.	605		C	II	3049.820	3048.933	10	43.01	287	
MN	II	3047.75	3046.86	5		328		FE	II	3049.881	3048.994	4	181.	896	
FE	I	3047.8129	3046.9265	8	198.	896		CA	I	3049.891	3049.004	2		1018	
NI	II	3047.895	3047.009	2		835		MN	II	3049.912	3049.025	100	21.	328	
MN	I	3047.915	3047.032	125	34.	148		V	III	3049.978	3049.091	2		325	
FE	I	3047.9362	3047.0498	15	457.	896		F	III	3050.026	3049.139	700		537	
AR	II	3047.939	3047.053	5		506		CU	II	3050.1701	3049.2831	2		612	
FE	III	3048.005	3047.119	1	80.	1015		FE	I	3050.241	3049.354	3		896	
O	III	3048.02	3047.13	150	4.	1015		C	II	3050.285	3049.398	25	43.	287	
FE	I	3048.084	3047.201	M	382.	605		CR	II	3050.37	3049.49	10		340	
V	I	3048.09	3047.21	1		1000		C	II	3050.558	3049.671	25	43.	287	
MN	II	3048.104	3047.217	50		328		CR	I	3050.762	3049.878	8	27.	341	
GE	II	3048.12	3047.23	2		676		MN	I	3050.852	3049.967	2		148	
CR	I	3048.329	3047.445	15	164.	341		AR	II	3050.930	3050.043	10		506	
NE	II	3048.4440	3047.5575	120	8.	389		AL	I	3050.960	3050.073	270	7.	198	
FE	I	3048.4909	3047.6043	280	9.	896		MN	I	3050.984	3050.100	3		148	
CR	II	3048.50	3047.62	20	15.	340		CR	II	3051.02	3050.14	100	65.	340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NA	II	3051.096	3050.211	40		693		AS	II	3053.960	3053.072	25		425	
V	I	3051.21	3050.33	1		1000		AR	II	3054.039	3053.151	50		506	
V	I	3051.280	3050.396	25	74.	1000		SI	II	3054.072	3053.184	150	17.	678	
FE	III	3051.354	3050.467	40	10.	288		MN	I	3054.181	3053.296	2		148	
NE	II	3051.361	3050.474	90		1016		AS	II	3054.250	3053.362	310		425	
CO	I	3051.381	3050.496	3	77.	603		CU	I	3054.27	3053.38	10	45.	672	
MN	II	3051.542	3050.654	170	21.	328		V	II	3054.28	3053.39	200	34.	478	
CR	II	3051.62	3050.74	6	95.	340		FE	I	3054.317	3053.429	8	398.	896	
V	II	3051.620	3050.735	15	66.	478		FE	I	3054.343	3053.455	6	31.	896	
NE	II	3051.651	3050.763	70		1016		FE	I	3054.426	3053.538	3		896	M
NI	I	3051.703	3050.819	500	25.	1015		CU	II	3054.4618	3053.5738	3		612	
V	I	3051.767	3050.883	35	16.	1000		V	II	3054.524	3053.637	6		782	
CO	I	3051.816	3050.932	60	51.	603		V	I	3054.52	3053.65	80	17.	1000	
SE	III	3051.92	3051.04	10		587		CR	II	3054.54	3053.65	10	64.	340	
V	II	3052.193	3051.308	3	228.	478		NA	II	3054.549	3053.663	90	15.	693	
CO	II	3052.20	3051.32	M		825		AS	II	3054.6085	3053.7204	40		425	
CR	II	3052.25	3051.37	2		340		CL	II	3054.647	3053.758	122	14.	613	
V	I	3052.27	3051.39	00		1000		CR	I	3054.75	3053.87	100	26.	341	
MN	II	3052.313	3051.426	140		328		FE	I	3054.766	3053.878	3		896	M
CR	II	3052.48	3051.60	6		340		V	II	3054.779	3053.394	80	40.	478	
P	II	3052.548	3051.660	10		496		CO	I	3055.017	3054.132	18		603	
V	III	3052.74	3051.85	1		325		FE	III	3055.026	3054.138	110	10.	288	
CU	I	3052.786	3051.901	2		672		V	II	3055.13	3054.24	7	67.	478	
CU	II	3052.835	3051.947	2		612		NI	I	3055.201	3054.316	250	25.	1015	
K	III	3052.95	3052.07	90	7.	488		NE	II	3055.234	3054.346	100		1016	
CO	II	3053.03	3052.15	1		825		MN	I	3055.248	3054.362	200	15.	148	
CU	II	3053.047	3052.160	2		612		NE	II	3055.309	3054.421	90		1016	
MN	II	3053.07	3052.18	2		328		NE	II	3055.5642	3054.6759	100	8.	389	
V	I	3053.080	3052.195	20	15.	1000		AL	I	3055.578	3054.679	40	7.	198	
CR	I	3053.103	3052.218	18	164.	341		MN	II	3055.57	3054.68	5		328	
V	III	3053.234	3052.346	10		325		CO	I	3055.610	3054.724	4	13.	603	
V	IV	3053.234	3052.346	10		829		AR	III	3055.70	3054.82	120	4.	79	
V	III	3053.356	3052.468	10		325		NI	II	3055.710	3054.822	10		835	
O	IV	3053.42	3052.53	150	5.	86		V	I	3055.78	3054.89	1	16.	1000	
CU	I	3053.439	3052.554	15	45.	672		CR	I	3055.83	3054.94	3		341	
SC	II	3053.814	3052.929	20	37.	1015		FE	I	3055.835	3054.949	M	263.	605	
CR	II	3053.86	3052.97	3		340		CR	I	3055.941	3055.055	5	164.	341	
BR	II	3053.901	3053.016	50		606		FE	I	3056.1505	3055.2620	50	55.	896	
FE	I	3053.950	3053.065	110	131.	488		AR	II	3056.169	3055.281	5		506	
FE	I	3053.9549	3053.0670	10	131.	896		FE	I	3056.182	3055.294	4		896	M

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CA	I	3056.209	3055.321	5		1018		NI	I	3058.524	3057.638	250	24.	488	
CR	II	3056.21	3055.32	5		340		MN	II	3058.53	3057.64	10		328	
NA	II	3056.232	3055.346	4		693		MN	I	3058.619	3057.733	1		148	
FE	II	3056.240	3055.351	5	181.	896		FE	I	3058.678	3057.789	6	29.	896	
V	II	3056.297	3055.409	2		782		FE	I	3058.701	3057.812	5	29.	896	
CR	II	3056.33	3055.44	15	33.	340		CR	II	3058.75	3057.86	12	65.	340	
FE	III	3056.442	3055.554	20	10.	288		NE	II	3058.753	3057.864	90		1016	
CA	I	3056.483	3055.595	2		1018		AS	II	3058.8341	3057.9450	310		425	
CU	II	3056.5020	3055.6135	10		612		CL	II	3058.852	3057.963	310	14.	613	
FE	I	3056.599	3055.710	4		896	M	FE	I	3058.924	3058.034	8		896	M
V	IV	3056.792	3055.864	5		829		TI	II	3058.977	3058.090	50	47.	1015	
MN	II	3056.775	3055.885	5		328		F	II	3059.049	3058.160	300		538	
MN	I	3056.801	3055.915	2		148		CR	I	3059.051	3058.164	6	164.	341	
V	II	3056.828	3055.942	7	123.	478		MN	I	3059.191	3058.305	2		148	
NA	II	3057.043	3056.157	90	1.	693		CR	II	3059.25	3058.36	12	48.	340	
FE	I	3057.061	3056.173	4		896	M	FE	I	3059.253	3058.364	5		896	M
CR	II	3057.09	3056.20	3		340		C	II	3059.340	3058.450	10	47.	287	
FE	I	3057.130	3056.242	8		896		FE	I	3059.383	3058.493	20		896	M
SC	I	3057.19	3056.30	1		1030	M	D	V	3059.57	3058.68	1		168	
V	I	3057.223	3056.339	100	17.	1000		CO	VI	3059.6	3058.7			108	F.
CR	I	3057.321	3056.435	3		341		NA	II	3059.613	3058.726	4		693	
MN	I	3057.357	3056.471	4		148		V	III	3059.82	3058.93	0		325	
V	I	3057.48	3056.59	1		1000		AL	I	3059.918	3059.029	25	7.	199	
CR	II	3057.55	3056.66	8	48.	340		MN	II	3059.949	3059.060	100	21.	328	
CO	I	3057.554	3056.668	2		603		FE	I	3059.9750	3059.0856	320	9.	896	
MN	II	3057.598	3056.709	30		328		C	II	3059.980	3059.091	25	47.	287	
TI	II	3057.626	3056.740	15	47.	1015		NE	II	3059.9943	3059.1049	100	17.	389	
FE	II	3057.688	3056.802	5	109.	1015		V	II	3060.081	3059.191	10		782	
K	III	3057.73	3056.84	60	7.	488		MN	I	3060.104	3059.217	5		148	
CU	II	3057.7380	3056.8491	5		612		CU	II	3060.177	3059.287	1		612	
C	II	3057.740	3056.850	4	47.	287	Q	D	III	3060.19	3059.30	90	4.	1015	
NI	II	3057.874	3056.985	8		835		FE	III	3060.258	3059.368	5		288	
MN	I	3057.879	3056.992	4		148		CR	II	3060.27	3059.38	10	15.	340	
V	II	3057.97	3057.08	2	95.	478		CR	II	3060.42	3059.53	25	15.	340	
F	II	3057.991	3057.102	250		538		NE	II	3060.613	3059.724	80		1016	
AL	I	3058.033	3057.144	315	7.	198		TI	II	3060.628	3059.741	6	5.	1015	
CU	I	3058.25	3057.36	8		672		TI	II	3060.628	3059.741	6	47.	1015	
NE	I	3058.274	3057.388	190		723		MN	II	3060.663	3059.772	20		328	
TI	II	3058.281	3057.395	10	5.	1015		C	II	3060.720	3059.830	1	47.	287	
FE	I	3058.3346	3057.4456	240	28.	896		CU	II	3060.7534	3059.8638	7		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
AL	I	3060.814	3059.924	25	7.	198		FE	II	3063.122	3062.234	9	108.	1015	
F	II	3060.881	3059.991	350		538		CU	II	3063.1716	3062.2814	10		612	
FE	III	3060.903	3060.013	5		288		LI	III	3063.242	3062.352			309	
FE	II	3060.910	3060.023	0	109.	1015		CO	I	3063.35	3062.46	1		603	
CO	I	3060.935	3060.048	5	77.	603		NE	II	3063.382	3062.491	100		1016	
V	IV	3061.036	3060.146	5		829		MN	II	3063.402	3062.511	40		328	
FE	III	3061.049	3060.159	5		288		SE	III	3063.43	3062.55	100		14	
BR	II	3061.193	3060.306	1		606		AS	II	3063.444	3062.554	30		425	
FE	I	3061.249	3060.359	5		896	M	AR	II	3063.533	3062.643	30		506	
V	I	3061.343	3060.457	125	17.	1000		V	II	3063.589	3062.702	20	34.	478	
SC	II	3061.418	3060.531	3	37.	1015		N	II	3063.72	3062.83		2.	521	F
FE	I	3061.4272	3060.5375	5	457.	896		V	III	3063.732	3062.842	10		325	
GE	II	3061.45	3060.56	20		676		FE	I	3063.759	3062.872	1	456.	605	
FE	I	3061.511	3060.621	4		896	M	CL	IV	3064.02	3063.13	500		43	
CR	I	3061.511	3060.624	2	164.	341		FE	I	3064.036	3063.149	1	102.	605	
C	II	3061.530	3060.640	4	47.01	287		P	III	3064.061	3063.170	4		936	
V	III	3061.638	3060.748	5		325		V	II	3064.135	3063.247	200	123.	478	
FE	I	3061.667	3060.777	4		896	M	CO	I	3064.14	3063.25	1	50.	603	
CU	I	3061.73	3060.84	2		672		CR	II	3064.14	3063.25	6		340	
AR	II	3061.7955	3060.9057	110		867		TI	II	3064.168	3063.280	2	119.	1015	
AS	II	3061.817	3060.928	0		425		NE	II	3064.191	3063.301	100		1016	
V	I	3061.82	3060.93	2	15.	1000		MN	II	3064.20	3063.31	3		328	
FE	I	3061.8731	3060.9832	5	55.	896		CU	I	3064.299	3063.411	500	16.	672	
SC	I	3061.89	3061.00	0		1028		NI	I	3064.31	3063.42	15		602	
CR	I	3061.90	3061.01	2	164.	341		O	IV	3064.31	3063.42	700	1.	86	
CO	I	3061.900	3061.013	1		603		AS	II	3064.360	3063.469	0		425	
V	II	3061.904	3061.014	2		782		TI	II	3064.390	3063.502	4	47.	1015	
V	II	3062.128	3061.238	5		782		CR	I	3064.53	3063.64	1		341	
NA	II	3062.220	3061.332	40		693		NE	I	3064.587	3063.696	5		896	
CR	II	3062.47	3061.58	8	41.	340		V	I	3064.611	3063.725	12	16.	1000	
CR	I	3062.53	3061.64	15	55.	341		SC	I	3064.63	3063.74	0		1030	M
CR	I	3062.702	3061.814	10		341		SE	III	3064.64	3063.75	85		587	
CO	I	3062.709	3061.822	20	11.	603		FE	II	3064.702	3063.814	1		645	
NE	II	3062.744	3061.854	50		1016		CR	II	3064.71	3063.82	7	32.	340	
CO	I	3062.871	3061.983	1	52.	603		CR	I	3064.72	3063.83	2		341	
CR	II	3062.91	3062.02	5		340		V	III	3064.81	3063.92	2		325	
CR	I	3062.94	3062.05	2	55.	341		FE	I	3064.8212	3063.9306	5	132.	896	
MN	I	3063.008	3062.120	140	15.	148		NI	II	3064.833	3063.942	5	3.	835	
V	II	3063.066	3062.178	3	113.	478		FE	I	3064.909	3064.018	4		896	M
CO	I	3063.086	3062.199	5	12.	603		MN	I	3064.933	3064.045	2		148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
AL	I	3065.181	3064.290	80	7.	198		AR	II	3067.780	3066.889	60		506	
CR	II	3065.21	3064.32	3		340		CA	I	3067.850	3066.958	2		1018	
CO	I	3065.258	3064.370	5	13.	603		FE	I	3067.891	3066.999	4		896	M
NA	II	3065.260	3064.372	40	6.	693		GE	I	3067.9128	3067.0214	40	5.	7	
NE	II	3065.447	3064.556	10		1016		CA	I	3067.974	3067.083	2		1018	
NI	I	3065.507	3064.619	125	24.	488		V	II	3067.993	3067.104	200	34	478	
AR	III	3065.66	3064.77	100	4.	79		V	I	3068.006	3067.117	6		1000	
FE	III	3065.914	3065.023	5		288		FE	I	3068.0096	3067.1182	30	56.	896	
CR	I	3065.953	3065.065	25	184.	341		CR	II	3068.07	3067.18	20	15.	340	
SC	II	3065.995	3065.106	30	37.	1015		CR	I	3068.09	3067.20	10	55.	341	
O	III	3066.01	3065.13	0	26.	1015	P	NE	I	3068.10	3067.21	14		1029	Q
AR	II	3066.011	3065.120	30		506		FE	I	3068.1355	3067.2441	155	28.	896	
FE	II	3066.207	3065.316	4	97.	896		NE	II	3068.34	3067.450	80		1016	
AR	II	3066.291	3065.400	5		506		SC	IV	3068.371	3067.482	1		720	
V	II	3066.50	3065.61	50	112.	478		NI	II	3068.449	3067.558	15		835	
NE	I	3066.56	3065.67	3		1029	Q	V	III	3068.50	3067.61	1		325	
MN	II	3066.600	3065.709	10		328		MN	I	3068.747	3067.858	1		148	
CU	I	3066.900	3066.011	3		672		V	IV	3068.75	3067.85	0		829	
MN	I	3066.910	3066.022	155	15.	148		FE	I	3068.8398	3067.9482	5	315.	896	
AR	II	3067.005	3066.114	5		506		FE	III	3068.924	3068.032	5		288	
AL	I	3067.036	3066.145	40	7.	198		O	III	3068.95	3068.06	0	26.	1015	
MN	II	3067.10	3066.21	2		328		SC	I	3069.06	3068.17	1		1028	
TI	II	3067.109	3066.220	30	5.	1015		FE	I	3069.0649	3068.1732	25	55.	896	
NI	II	3067.128	3066.237	8		835		SI	III	3069.130	3068.238	80	10.1	768	
P	II	3067.21	3066.32	0		431		FE	II	3069.616	3068.724	3	122.	896	
TI	II	3067.243	3066.354	20	5.	1015		O	III	3069.68	3068.79	1	26.	1015	P
V	I	3067.261	3066.373	125	17.	1000		CU	I	3069.795	3068.906	15	16.	672	
NI	I	3067.34	3066.46	15		602		FE	I	3069.816	3068.927	1	53.	605	
FE	I	3067.3699	3066.4786	6	313.	896		CR	II	3069.91	3069.02	1		340	
V	I	3067.40	3066.51	20	17.	1000		CO	I	3069.921	3069.032	1		603	
TI	II	3067.403	3066.514	3	47.	1015		V	II	3069.978	3069.085	8		782	
V	III	3067.41	3066.52	3		325		MN	II	3070.12	3069.23	2		328	
NA	II	3067.424	3066.535	40	18.	693		FE	III	3070.225	3069.335	4	1.	1015	
TI	III	3067.48	3066.51	G		227		FE	I	3070.335	3069.443	3		896	M
CU	II	3067.4931	3066.6019	7		612		V	I	3070.536	3069.648	30	15.	1000	
V	II	3067.560	3066.669	5		782		FE	III	3070.54	3069.65	1		288	
NE	II	3067.574	3066.683	10		1016		CL	II	3070.561	3069.669	138	14.	613	
F	III	3067.621	3066.730	200		537		MN	II	3070.62	3069.73	2		328	
V	II	3067.69	3066.80	4	123.	478		AS	II	3070.699	3069.807	20		425	
FE	III	3067.709	3066.817	5		288		SE	III	3070.82	3069.93	250		14	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	III	3070.983	3070.091	40	30.	288		CO	I	3072.847	3071.957	6	12.	603	
V	II	3071.02	3070.12	25	228.	478		CU	I	3072.85	3071.96	2		672	
MN	I	3071.160	3070.270	170	15.	148		CA	I	3072.892	3072.000	2		1018	
CO	I	3071.23	3070.34	1		603		FE	XII	3072.9	3072.0			726	FH
N	II	3071.44	3070.55		2.	521	F	FE	I	3072.938	3072.045	3		896	M
CO	I	3071.440	3070.550	1		603		ZN	I	3072.954	3072.061	140	5.	830	
FE	II	3071.481	3070.591	00	83	1015		TI	II	3072.998	3072.107	30	5.	1015	
FE	II	3071.582	3070.692	4	68	1015		CR	II	3073.08	3072.19	2	64.	340	
CO	I	3071.642	3070.752	5		603		FE	I	3073.182	3072.290	4		896	M
MN	II	3071.713	3070.821	80		328		NE	II	3073.195	3072.302	20		1016	
NA	II	3071.72	3070.83	1		693		CO	I	3073.231	3072.341	15	11.	603	
CO	I	3071.746	3070.857	1		603		CR	II	3073.36	3072.47	8	32.	340	
V	II	3071.747	3070.855	4.		782		MN	II	3073.39	3072.50	1		328	
V	I	3071.77	3070.88	2		1000		V	III	3073.41	3072.50	5		325	
NE	II	3071.786	3070.895	100		1016		TI	II	3073.43	3072.54	0	119.	1015	
CU	I	3071.86	3070.97	5		672		NE	II	3073.544	3072.651	90		1016	
CR	II	3071.91	3071.02	2	41.	340		CO	I	3073.554	3072.664	20	125.	603	
AS	II	3071.962	3071.070	30		425		V	I	3073.62	3072.73	2		1000	
NE	II	3071.9796	3071.0872	90	17.	389		MN	II	3073.769	3072.875	2		328	
FE	II	3072.017	3071.124	5	181.	896		TI	II	3073.862	3072.971	40	5.	1015	
FE	III	3072.128	3071.238	5	1.	1015		MN	I	3074.020	3073.180	170	15.	148	
TI	II	3072.132	3071.242	15	47.	1015		FE	I	3074.126	3073.233	3	549.	896	
FE	I	3072.168	3071.276	1	456.	378		CR	II	3074.13	3073.24	15	47.	340	
CR	I	3072.187	3071.297	10	55.	341		SC	I	3074.22	3073.33	1		1028	
CL	II	3072.212	3071.320	360	14.	613		CO	I	3074.411	3073.520	3	51.	603	
CL	IV	3072.25	3071.36	300		43		CR	I	3074.57	3073.68	25	184.	341	
CR	I	3072.30	3071.41	2	55.	341		P	II	3074.61	3073.72	0		431	
NE	II	3072.422	3071.530	100		1016		CU	I	3074.688	3073.798	370	15.	672	
FE	V	3072.45	3071.56			229	F	AS	II	3074.708	3073.815	30		425	
CR	II	3072.46	3071.57	7	47.	340		NE	II	3074.714	3073.821	70		1016	
CA	I	3072.461	3071.568	3		1018		V	I	3074.718	3073.825	60	17.	1000	
O	IV	3072.50	3071.61	650	1.	86		FE	I	3074.8714	3073.9783	4	313.	896	
FE	II	3072.544	3071.653	2	123.	1015		SE	III	3074.92	3074.03	150		14	
AR	II	3072.553	3071.660	5		506		MN	II	3074.93	3074.04	10		328	
V	II	3072.66	3071.77	2	250.	478		AS	II	3074.933	3074.040	5		425	
P	IV	3072.671	3071.778	150		937		V	I	3074.95	3074.06	10		1000	
MN	II	3072.677	3071.784	5		328		CR	I	3075.02	3074.13	2	55.	341	
GE	IV	3072.73	3071.84	5		406		FE	I	3075.0404	3074.1473	5	457.	896	
CR	II	3072.74	3071.85	3		340		MG	III	3075.2	3074.2	G		2	
V	III	3072.760	3071.868	10		325		O	III	3075.20	3074.31	1	26.	1015	P

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NA	II	3075.225	3074.333	90	9.	693		FE	II	3077.329	3076.435	3	181.	896	
FE	I	3075.330	3074.437	5		896	M	V	III	3077.389	3076.495	100		325	
CR	I	3075.356	3074.465	7	55.	341		CR	I	3077.46	3076.57	6	55.	341	
AL	II	3075.526	3074.635	150	27.	1015		N	II	3077.465	3076.573		55.0	521	P
V	II	3075.55	3074.66	12	112.	478		V	I	3077.52	3076.63	4		1000	
CR	II	3075.56	3074.67	3	73.	340		CL	IV	3077.57	3076.68	600		43	
V	I	3075.72	3074.83	8		1000		V	I	3077.58	3076.69	5		1000	
O	III	3075.76	3074.87	0	26.	1015	P	V	III	3077.619	3076.725	10		325	
CR	II	3075.79	3074.90	3	73.	340		MN	II	3077.727	3076.833	10		328	
P	III	3075.801	3074.907	10		936		CA	I	3077.845	3076.951	3		1018	
MN	II	3075.89	3075.00	0		328		NE	I	3077.870	3076.976	20		896	
V	II	3075.934	3075.043	3	228.	478		SC	I	3077.93	3077.04	1		1030	M
NE	II	3075.97J	3075.077	10		1016		FE	II	3078.064	3077.170	4	108.	896	
MN	II	3076.000	3075.106	20		328		CR	II	3078.13	3077.24	18	103.	340	
TI	II	3076.117	3075.225	40	5.	1015		AR	IV	3078.29	3077.40	80	1.	1015	
FE	II	3076.120	3075.228	2	68.	1015		V	IV	3078.370	3077.476	15		829	
O	III	3076.15	3075.26	1	26.	1015	P	SI	III	3078.417	3077.523	25	10.1	768	
V	I	3076.158	3075.269	10	105.	1000		CR	II	3078.48	3077.59	5	32.	340	
AS	I	3076.21	3075.32	20	15.	480		FE	I	3078.530	3077.636	4		896	M
SC	II	3076.280	3075.388	3	37.	1015		V	I	3078.62	3077.73	6		1000	
V	II	3076.365	3075.474	2	67.	478		CR	II	3078.67	3077.78	25	103.	340	
V	II	3076.47	3075.58	5	228.	478		CR	I	3078.727	3077.835	30	184.	341	
AS	II	3076.521	3075.627	5		425		NE	II	3078.732	3077.838	80		1016	
FE	V	3076.54	3075.65			229	F	V	I	3078.75	3077.86	5		1000	
FE	I	3076.6128	3075.7193	110	28.	896		MN	II	3078.81	3077.91	10		328	
NE	II	3076.625	3075.731	100		1016		V	III	3078.901	3078.007	20		325	
V	III	3076.705	3075.806	1		325		FE	I	3078.9096	3078.0155	15	29.	896	
CO	III	3076.78	3075.89	5		673		N	II	3079.000	3078.108		34.0	521	P
ZN	I	3076.789	3075.895	180	1.	830		AR	III	3079.05	3078.15	100	4.	79	
P	II	3076.795	3075.902	20		496		N	IV	3079.14	3078.25	160	19.	824	
NI	I	3076.80	3075.91	10		602		FE	I	3079.153	3078.259	3		896	M
V	I	3076.825	3075.935	8	57.	1000		BR	II	3079.196	3078.304	50		606	
FE	I	3076.843	3075.950	4		896		NA	II	3079.206	3078.314	150	2.	693	
NI	II	3076.9	3076.0			909	F	SC	IV	3079.248	3078.356	5		720	
V	II	3076.907	3076.016	25	34.	478		FE	I	3079.3267	3078.4324	6	131.	896	
O	III	3076.96	3076.07	1	26.	1015	P	SC	I	3079.35	3078.46	1		1030	M
CR	I	3077.042	3076.151	6		341		NE	II	3079.482	3078.588	80		1016	
N	II	3077.196	3076.304		55.0	521	P	TI	II	3079.538	3078.645	50	5.	1015	
MN	II	3077.224	3076.330	30		328		V	II	3079.56	3078.66	3		782	
NE	II	3077.251	3076.357	90		1016		FE	II	3079.575	3078.681	5	181.	896	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NA	II	3079.625	3078.732	4		693		FE	I	3082.173	3081.278	1	457.	378	
V	III	3079.694	3078.800	50		325		V	II	3082.19	3081.30	10	164.	478	
NE	I	3079.772	3078.878	4		896		MN	I	3082.232	3081.340	100	15.	148	
NI	II	3079.825	3078.930	15		835		NE	II	3082.237	3081.342	90	.	1016	
V	II	3079.839	3078.948	5	66.	478		CU	II	3082.3431	3081.4481	3		612	
O	V	3079.84	3078.95	7		83		O	II	3082.35	3081.46	10		1015	M
NE	I	3080.075	3079.181	4		896		N	II	3082.380	3081.485	20	55.0	200	
CR	II	3080.23	3079.34	15	102.	340		SC	I	3082.45	3081.56	1		1028	
FE	II	3080.249	3079.356	0	122.	1015		TI	II	3082.468	3081.575	5	119.	1015	
AS	II	3080.253	3079.358	170		425		CA	I	3082.483	3081.588	2		1018	
V	I	3080.256	3079.365	4		1000		FE	I	3082.629	3081.734	3		896	M
MN	II	3080.28	3079.38	20		328		FE	I	3082.727	3081.832	1	53.	378	
CO	I	3080.286	3079.394	5	10.	603		CR	I	3082.81	3081.92	1		341	
V	III	3080.48	3079.59	8		325		V	I	3082.903	3082.010	6	105.	1000	
MN	I	3080.527	3079.635	140	15.	148		MN	I	3082.952	3082.060	40	15.	148	
V	II	3080.64	3079.75	1	113.	478		V	I	3083.002	3082.109	50	17.	1000	
SC	I	3080.84	3079.95	1		1030	M	FE	I	3083.048	3082.153	3		896	M
FE	I	3080.885	3079.990	1		896	M	AL	I	3083.0481	3082.1529	850	3.	198	
V	III	3080.919	3080.024	10		325		CR	I	3083.049	3082.157	40		341	
FE	I	3081.005	3080.110	4		896	M	N	II	3083.086	3082.191	70	55.0	200	
V	I	3081.05	3080.16	6	15.	1000		MN	I	3083.139	3082.246	2		148	
MG	III	3081.10	3080.21	3		2		MN	II	3083.188	3082.292	20		328	
CR	II	3081.12	3080.23	4		340		V	III	3083.26	3082.36	50		325	
SC	I	3081.12	3080.23	1		1030	M	BR	II	3083.275	3082.381	50		606	
NA	II	3081.142	3080.249	25		693		C	II	3083.276	3082.381	10	33.04	287	
P	II	3081.20	3080.30	0		431		V	II	3083.31	3082.41	15		782	
CU	II	3081.215	3080.320	8		612		MN	I	3083.399	3082.507	2		148	
V	I	3081.23	3080.34	12	57.	1000		V	II	3083.416	3082.524	40	39.	478	
FE	II	3081.298	3080.405	2	108.	1015		CU	I	3083.43	3082.53	1		672	
MN	II	3081.40	3080.50	0		328		SC	II	3083.45	3082.56	2	36.	1015	
MN	II	3081.584	3080.688	10		328		CO	I	3083.507	3082.614	12	10.	603	
CR	I	3081.604	3080.712	6	184.	341		NE	II	3083.509	3082.613	80		1016	
NI	I	3081.647	3080.754	100	24.	488		NE	II	3083.602	3082.706	70		1016	
CA	I	3081.685	3080.790	3		1018		MN	I	3083.605	3082.713	15		148	
FE	I	3081.897	3081.002	4		896	M	CO	I	3083.737	3082.844	2	73.	603	
V	II	3081.90	3081.01	20	112.	478		CU	II	3083.830	3082.935	2		612	
P	III	3081.904	3081.010	1		936		AR	II	3083.874	3082.979	50	120.	506	
MN	II	3082.043	3081.148	5		328		FE	II	3083.918	3083.024	3	97.	1015	
N	II	3082.117	3081.222	20	55.0	200		CR	II	3083.93	3083.04	3		340	
V	II	3082.147	3081.254	25	66.	478		C	II	3083.947	3083.052	10	33.04	287	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SC	II	3083.96	3083.07		37.	1015	P	SC	I	3086.19	3085.30	1		1030	M
FE	I	3084.045	3083.152	1	197.	605		CR	II	3086.24	3085.35	10	47.	340	
AR	II	3084.089	3083.193	10	.	506		CU	II	3086.330	3085.434	2		612	
V	II	3084.101	3083.208	40	112.	478		V	II	3086.36	3085.47	1	34.	478	
SC	I	3084.17	3083.28	1		1030	M	FE	I	3086.469	3085.573	3		896	M
V	III	3084.255	3083.360	3		325		CU	II	3086.478	3085.582	2		612	
SI	III	3084.259	3083.363	7	10.1	768		CO	I	3086.54	3085.65	3		603	
CU	II	3084.2632	3083.3678	15		612		AS	II	3086.558	3085.662	0		425	
FE	V	3084.42	3083.53			229	F	MN	II	3086.615	3085.719	20		328	
V	I	3084.433	3083.545	30	57.	1000		V	I	3086.816	3085.923	1		1000	
CR	II	3084.50	3083.61	10	47.	340		NE	II	3086.976	3086.080	70		1016	
AR	III	3084.53	3083.64	30		79		NE	II	3087.078	3086.182	10		1016	
MN	IJ	3084.55	3083.66	0		328		V	II	3087.104	3086.210	10	66.	478	
FE	III	3084.6	3083.7	D	39.	288		SI	III	3087.132	3086.236	1000	1.	768	
FE	I	3084.6368	3083.7413	50	28.	896		F	II	3087.150	3086.254	120		538	
CO	I	3084.641	3083.749	1		603		FE	III	3087.206	3086.311	6		1015	
O	III	3084.69	3083.80	4	26.	1015	P	CO	I	3087.287	3086.393	4	50.	603	
NE	II	3084.915	3084.019	30		1016		SI	III	3087.35	3086.46	60	1.	768	
MN	I	3084.918	3084.025	1		148		CU	I	3087.36	3086.47	2		672	
CR	I	3084.94	3084.05	2		341		V	II	3087.400	3086.507	30	39.	478	
FE	III	3084.96	3084.07	40	40.	288		F	II	3087.407	3086.511	120		538	
CR	III	3085.01	3084.12	1		490		SI	III	3087.562	3086.666	G	1.	768	
N	II	3085.051	3084.155	20	55.0	200		CO	I	3087.670	3086.777	15	11.	603	
MN	II	3085.14	3084.24	3		328		CR	I	3087.679	3086.785	8		341	
V	IV	3085.28	3084.36	1		829		N	II	3087.68	3086.78	20	55.0	200	
BR	II	3085.272	3084.378	1		606		CO	I	3087.73	3086.83	1	76.	603	
V	I	3085.276	3084.384	20		1000		FE	III	3087.775	3086.880	00	81.	1015	
CR	II	3085.34	3084.45	15	71.	340		C	II	3087.799	3086.903	4	38.02	287	
FE	I	3085.357	3084.461	4		896	M	MN	III	3087.8	3086.9			909	F
MN	II	3085.468	3084.572	50		328		MN	II	3087.868	3086.972	40		328	
CR	I	3085.472	3084.579	6	184.	341		MN	III	3087.9	3087.0			909	F
NI	II	3085.474	3084.578	4		835		AL	I	3087.91	3087.02	40	19.	1015	
MN	II	3085.608	3084.712	30		328		NA	II	3087.940	3087.045	10		693	
O	III	3085.64	3084.75	1	26C	1015	P	V	I	3087.965	3087.072	15	57.	1000	
TI	I	3085.713	3084.819	40	93.	1015		NI	II	3087.966	3087.069	75	35.	835	
MN	I	3085.772	3084.879	2		148		V	III	3088.10	3087.20	100		325	
NE	II	3085.814	3084.918	80		1016		CO	I	3088.24	3087.35	2		603	
CU	I	3085.86	3084.96	2		672		SC	I	3088.25	3087.35	1		1030	M
GE	II	3085.871	3084.975	20		676		MN	I	3088.272	3087.378	1		148	
AR	II	3085.922	3085.026	50	118.	506		FE	I	3088.317	3087.420	1		378	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
V	III	3088.38	3087.48	40		325		BE	I	3090.723	3089.826	3		330	
V	I	3088.38	3087.49	2		1000		AS	II	3090.840	3089.943	0		425	
CR	I	3088.428	3087.534	10		341		BE	I	3090.920	3090.023	7		330	
FE	III	3088.554	3087.659	1	77.	1015		TI	II	3090.947	3090.051	8	119.	1015	
MN	I	3088.685	3087.791	3		148		AS	II	3091.024	3090.127	2		425	
CO	I	3088.699	3087.806	3	77.	603		BE	I	3091.027	3090.130	7		330	
C	II	3088.79	3087.90	1	38.02	287		TI	I	3091.033	3090.137	80	93.	1015	
CR	II	3088.79	3087.90	20	102.	340		FE	I	3091.1023	3090.2051	2	313.	896	
NI	II	3088.800	3087.904	4		835		CO	I	3091.145	3090.251	4	77.	603	
MN	I	3088.837	3087.944	2		148		V	I	3091.29	3090.40	1	15.	1000	
TI	II	3088.922	3088.027	75	5.	1015		V	I	3091.433	3090.538	3		1000	
V	I	3089.012	3088.119	30	56.	1000		AS	II	3091.436	3090.539	0		425	
V	II	3089.013	3088.118	15		782		FE	III	3091.651	3090.754	20		288	
V	III	3089.02	3088.12	100		325		V	I	3091.70	3090.81	4		1000	
CU	I	3089.025	3088.132	112		672		V	III	3091.735	3090.838	20		325	
O	III	3089.06	3088.16	10	26.	168	P	CR	II	3091.80	3090.91	2	126.	340	
NE	II	3089.062	3088.165	120	24.	1016		AS	II	3091.9615	3091.0641	50		425	
AR	II	3089.106	3088.209	70	119.	506		MG	I	3091.962	3091.065	160	5.	1017	
V	II	3089.116	3088.219	20		782	F P	MN	I	3091.993	3091.098	3		148	
CR	III	3089.12	3088.22			893		V	I	3092.31	3091.42	20	15.	1000	
NE	II	3089.174	3088.276	80		1016		V	I	3092.447	3091.552	15	15.	1000	
MN	III	3089.4	3088.4			909	F	FE	I	3092.4745	3091.5769	110	28.	896	
AL	II	3089.418	3088.523	50	20.	1015		FE	III	3092.53	3091.63	70		288	
MN	II	3089.43	3088.53	5		328		MN	I	3092.568	3091.673	4		148	
V	II	3089.482	3088.585	20		782		NE	II	3092.991	3092.094	100		1016	
FE	I	3089.562	3088.665	20		896	M	CL	II	3093.091	3092.193	370	14.	613	
CO	I	3089.569	3088.676	1		603		CR	III	3093.18	3092.28	2		490	
CU	II	3089.6458	3088.7489	12		612		SC	I	3093.33	3092.43	2		1030	M
AR	II	3089.807	3088.910	30		506		SC	II	3093.416	3092.519	2	36.	1015	
AS	II	3089.959	3089.062	2		425		MN	I	3093.444	3092.549	7		148	
V	I	3090.029	3089.134	25	37.	1000		V	I	3093.539	3092.641	40		929	
FE	II	3090.284	3089.388	4	158.	1015		CR	I	3093.602	3092.708	50		341	
TI	II	3090.297	3089.401	15	90.	1015		AL	I	3093.6077	3092.7099	1000	3.	198	
MN	II	3090.30	3089.40	0		328		FE	I	3093.608	3092.710	10		896	M
CO	I	3090.490	3089.596	10	10.	603		V	I	3093.62	3092.72	8		1000	
V	II	3090.527	3089.633	4	112.	478		NA	II	3093.624	3092.727	250	1.	693	
FE	III	3090.545	3089.649	1	40.	1015		FE	I	3093.6789	3092.7811	10	29.	896	
MN	I	3090.581	3089.686	1		148		CR	I	3093.728	3092.833	20		341	
CR	II	3090.61	3089.72	1	195.	340		AL	I	3093.7364	3092.8386	580	3.	198	
SC	I	3090.68	3089.78	2		1030	M	V	I	3093.74	3092.85	1		1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AS	II	3093.742	3092.844	80		425		MN	II	3095.72	3094.82	1		328	
MN	I	3093.767	3092.872	10		148		FE	I	3095.798	3094.900	10	315.	896	
NE	II	3093.800	3092.902	120	44.	1016		CR	II	3095.83	3094.93	10	86.	340	
CL	II	3093.824	3092.926	48		613		AR	II	3095.858	3094.960	40	118.	506	
MN	II	3093.84	3092.94	1		328		NE	II	3096.001	3095.103	100		563	
MG	I	3093.882	3092.984	195	5.	1017		NE	II	3096.073	3095.175	90		1016	
V	II	3094.003	3093.108	1000	1.	478		CR	II	3096.10	3095.20	3	86.	340	
MN	I	3094.016	3093.121	2		148		CA	I	3096.112	3095.214	2		1018	
CR	II	3094.07	3093.17	3	47.	340		MN	I	3096.139	3095.244	1		148	
CU	III	3094.118	3093.220	3		724		FE	I	3096.1652	3095.2668	6	314.	896	
V	I	3094.14	3093.24	6	15.	1000		SC	I	3096.25	3095.35	1		1028	
MN	I	3094.247	3093.352	4		148		V	III	3096.25	3095.36	0		325	
FE	I	3094.253	3093.355	6		896		CR	I	3096.26J	3095.385	15		341	
AR	II	3094.2999	3093.4019	180	84.	867		CR	II	3096.38	3095.48	12		340	
MN	II	3094.32	3093.42	5		328		P	III	3096.512	3095.614	1		936	
SI	III	3094.322	3093.424	640	1.	768		CO	I	3096.612	3095.716	3	49.	603	
MN	I	3094.362	3093.467	1		148		CR	I	3096.75	3095.85	15		341	
CR	II	3094.37	3093.47	40	125.	340		V	I	3096.80	3095.90	5	57.	1000	
AS	II	3094.487	3093.589	10		425		O	III	3096.85	3095.96	0	26.	1015	P
SI	III	3094.55	3093.65	40	1.	768		MN	II	3096.892	3095.992	20		328	
MN	I	3094.584	3093.689	2		148		V	I	3096.94	3096.04	2		1000	
V	I	3094.69	3093.79	25	57.	1000		FE	I	3096.943	3096.044	1		378	
V	II	3094.698	3093.800	3		782		CR	II	3097.01	3096.11	35	126.	340	
FE	I	3094.7025	3093.8044	8	55.	896		V	IV	3097.125	3096.226	2		829	
FE	I	3094.776	3093.878	30	261.	896		V	II	3097.152	3096.253	4		782	
CR	II	3094.87	3093.97	15	47.	340		FE	II	3097.194	3096.296	5	97.	1015	
CU	I	3094.884	3093.989	390	14.	672		MN	II	3097.195	3096.296	30		328	
NE	II	3094.9040	3094.0058	100	24.	389		MN	I	3097.280	3096.384	6		148	
V	III	3094.987	3094.089	100		325		CO	I	3097.298	3096.402	3	52.	603	
FE	III	3095.053	3094.156	1	78.	1015		TI	II	3097.322	3096.424	2	77.	1015	
V	II	3095.092	3094.196	100	39.	478		CR	I	3097.412	3096.516	10		341	
SE	III	3095.17	3094.27	150		14		V	III	3097.488	3096.589	80		325	
CR	I	3095.178	3094.283	1		341		CL	II	3097.594	3096.695	290	31.	613	
FE	III	3095.201	3094.303	20		288		CR	I	3097.600	3096.704	10		341	
P	II	3095.21	3094.31	1		496		CO	I	3097.601	3096.705	2		603	
MN	III	3095.3	3094.4			909		V	I	3097.659	3096.763			1000	
SC	I	3095.53	3094.63	1		1030		SC	II	3097.67	3096.77		6.	1015	P
V	I	3095.594	3094.699	20	56.	1000		NI	I	3097.69	3096.80	5		602	
FE	III	3095.659	3094.761	5		288		FE	III	3097.72	3096.82	1	65.	288	
MN	I	3095.714	3094.818	1		148		SI	III	3097.725	3096.826	410	1.	768	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CO	II	3097.73	3096.83			825		FE	I	3100.018	3099.118	0		378	
MG	I	3097.789	3096.890	230	5.	1017		AS	II	3100.184	3099.285	0		425	
FE	III	3097.87	3096.97	5		288		CA	I	3100.197	3099.298	3		1018	
MN	I	3097.906	3097.010	20		148		MN	I	3100.197	3099.301	1		148	
MN	I	3097.960	3097.063	30		148		MN	II	3100.274	3099.303	20		328	
NI	I	3098.016	3097.118	75	11.	1015		SC	I	3100.34	3099.44	1		1030	M
NE	II	3098.030	3097.131	100	44.	1016		CO	II	3100.39	3099.49	M		825	
V	II	3098.05	3097.15	2		782		CR	I	3100.394	3099.497	4		341	
TI	II	3098.084	3097.186	25	67.	1015		V	I	3100.49	3099.59	2		1000	
P	II	3098.18	3097.28	0		431		CO	I	3100.564	3099.667	2	75.	603	
F	II	3098.25	3097.35	10		538		MN	II	3100.61	3099.71	1		328	
FE	II	3098.313	3097.415	2	96.	1015		V	III	3100.67	3099.77	2		325	
S	IV	3098.36	3097.46	500	1.	1015		AR	II	3100.758	3099.858	10		506	
FE	I	3098.399	3097.500	0	165.	378		CR	II	3100.78	3099.88	2		340	
O	II	3098.42	3097.52	1		168		FE	I	3100.7947	3099.8951	100	28.	896	
NE	II	3098.434	3097.535	40		1016		AR	II	3100.823	3099.923	50		506	
TI	II	3098.524	3097.626	1	77.	1015		CU	I	3100.825	3099.928	350		672	
V	II	3098.53	3097.63	2		782		FE	I	3100.8675	3099.9679	100	28.	896	
CO	III	3098.63	3097.74	2		673		NE	II	3100.905	3100.005	10		1016	
MN	I	3098.655	3097.758	5		148		CO	I	3101.04	3100.15	6		603	
FE	I	3098.674	3097.775	6		896	M	CA	I	3101.119	3100.220	2		1018	
V	III	3098.75	3097.85	1		325		V	III	3101.13	3100.23	5		325	
CU	II	3098.7642	3097.8651	10		612		V	II	3101.150	3100.260	10		782	
FE	I	3098.783	3097.884	5		896	M	MN	I	3101.164	3100.267	8		148	
MN	I	3098.991	3098.092	10		148		FE	I	3101.2028	3100.3031	60	28.	896	
F	II	3099.00	3098.10	10		538		MN	I	3101.207	3100.310	10		148	
CR	II	3099.06	3098.16	18	86.	340		FE	III	3101.21	3100.31		51.	1015	P
FE	I	3099.0883	3098.1891	80	313.	896		CO	I	3101.23	3100.33	5		603	
CO	I	3099.091	3098.194	10	10.	603		MN	III	3101.333	3100.433	1		301	
CR	I	3099.16	3098.26	1		341		AS	II	3101.346	3100.447	1		425	
AS	II	3099.208	3098.309	0		425		CR	I	3101.36	3100.46	1		341	
V	III	3099.452	3098.553	60		325		FE	III	3101.370	3100.470	40	29.	288	
SC	I	3099.50	3098.60	1		1030	M	V	III	3101.40	3100.50	1		325	
AS	II	3099.5199	3098.6206	100		425		C	II	3101.470	3100.570	10	7.01	287	
NE	II	3099.727	3098.827	60		1016		BR	II	3101.540	3100.641	100		606	
CR	II	3099.78	3098.88	4	86.	340		FE	I	3101.5649	3100.6651	100	28.	896	
FE	III	3099.83	3098.93		51.	1015	P	TI	I	3101.565	3100.666	120	93.	1015	
FE	I	3099.862	3098.963	1	102.	378		TI	I	3101.565	3100.666	120	92.	1015	
FE	III	3099.91	3099.01	5	65.	288		FE	I	3101.7361	3100.8363	10	196.	896	
NI	I	3100.013	3099.115	60	13.	1015		V	II	3101.835	3100.938	100	39.	478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	3101.9016	3101.0017	0	313.	896		TI	II	3104.704	3103.804	50	90.	1015	
AR	II	3101.9089	3101.0090	20		867		MN	II	3104.860	3103.958	0		328	
CO	VI	3102.2	3101.3			108	F	CO	I	3104.881	3103.983	5	48.	603	
V	I	3102.3	3101.4	1		1000		V	I	3104.89	3103.99	6	56.	1000	
NE	I	3102.31	3101.41	4		1029	Q	MN	II	3105.024	3104.122	30		328	
TI	II	3102.42	3101.52			58.		MN	II	3105.164	3104.262	15		328	
TI	I	3102.425	3101.526	40	181.	1015		CR	II	3105.19	3104.29	3	102.	340	
MN	I	3102.426	3101.529	30		148		AR	II	3105.260	3104.359	50	119.	506	
NI	I	3102.453	3101.554	500	25.	1015		NA	II	3105.294	3104.394	40	17.	693	
V	III	3102.49	3101.59	100		325		MN	II	3105.339	3104.438	50		328	
TI	I	3102.67	3101.77	10	181.	1015		CL	III	3105.38	3104.46	600	3.	38	
K	I	3102.690	3101.790	40	2.	1019		V	II	3105.419	3104.518	8		782	
MN	I	3102.753	3101.836	2		148		TI	II	3105.493	3104.593	3	90.	1015	
NI	I	3102.778	3101.879	200	40.	1015		CR	I	3105.604	3104.706	7	163.	341	
K	I	3102.943	3102.043	25	2.	1019		MG	II	3105.623	3104.722	360	6.	592	
SC	I	3103.05	3102.15	1		1028		CO	II	3105.69	3104.79	4		825	
V	II	3103.192	3102.295	925	1.	478		MG	II	3105.711	3104.809	285	6.	592	
AS	II	3103.209	3102.309	0		425		V	II	3105.804	3104.906	25	39.	478	
CA	I	3103.254	3102.354	2	16.	1018		TI	II	3105.984	3105.084	20	67.	1015	
SC	I	3103.26	3102.36	1		1030	M	FE	II	3106.066	3105.166	5	82.	1015	
CO	I	3103.302	3102.405	4	49.	603		FE	II	3106.066	3105.166	5	122.	1015	
TI	I	3103.416	3102.517	30	181.	1015		TI	I	3106.120	3105.220	20	181.	1015	
FE	III	3103.448	3102.548	5	29.	288		V	II	3106.264	3105.363	15		782	
CR	II	3103.45	3102.55	3	116.	340		NI	I	3106.369	3105.469	75	12.	1015	
MN	II	3103.465	3102.564	15		328		V	II	3106.399	3105.498	8		782	
AR	II	3103.485	3102.585	40		506		SE	II	3106.40	3105.50	100		468	
FE	I	3103.537	3102.637	5	29.	896		V	III	3106.40	3105.50	15		325	
FE	I	3103.61	3102.71	4		605	N	FE	II	3106.448	3105.548	5	82.	1015	
SE	III	3103.66	3102.76	120		587		CR	I	3106.473	3105.574	5	163.	341	
AR	II	3103.853	3102.953	10		506		V	III	3106.53	3105.63	15		325	
TI	II	3103.875	3102.975	2	58.	1015		SC	I	3106.57	3105.67	1		1028	
MN	II	3103.89	3102.99	1		328		CR	I	3106.74	3105.84	1		341	
FE	V	3103.91	3103.01			229	F	MN	II	3106.785	3105.883	50		328	
F	II	3104.17	3103.27	4		538		CO	I	3106.827	3105.929	3	26.	603	
MN	I	3104.178	3103.280	1	38.	148		V	II	3106.871	3105.973	5	140.	478	
CR	II	3104.37	3103.47	30	71.	340		SC	I	3106.91	3106.01	1		1030	M
V	I	3104.50	3103.60	1	56.	1000		MN	II	3106.98	3106.08	4		328	
CO	I	3104.633	3103.735	5	73.	603		CL	IV	3106.99	3106.09	100		43	
FE	I	3104.661	3103.760	1		378		V	I	3107.02	3106.12	5	56.	1000	
CL	II	3104.678	3103.777	43		613		CO	I	3107.040	3106.142	1		603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
F	II	3107.057	3106.156	60		538		MN	I	3109.533	3108.634	10	38.	148	
TI	II	3107.135	3106.234	35	67.	1015		CR	II	3109.55	3108.65	10	55.	340	
MN	II	3107.192	3106.290	20		328		V	II	3109.603	3108.704	30	39.	478	
MN	I	3107.234	3106.336	2		148		AS	IV	3109.70	3108.81	600		584	
MN	II	3107.27	3106.37	2		328		AR	II	3109.7071	3108.8052	20	18.	867	
V	III	3107.41	3106.51	10		325		MN	II	3109.719	3108.816	60		328	
FE	I	3107.4396	3106.5383	4	196.	896		FE	III	3109.75	3108.85	40	12.	288	
SC	I	3107.44	3106.54	1		1030	M	V	II	3109.81	3108.91	2		782	
FE	II	3107.460	3106.559	4	68.	1015		TI	II	3109.828	3108.927	0	77.	1015	
MN	I	3107.647	3106.748	10		148		CR	II	3109.88	3108.98	3		340	
TI	I	3107.707	3106.806	80	92.	1015		FE	I	3109.9395	3109.0376	5	165.	896	
V	II	3107.728	3106.829	3	139.	478		AR	III	3110.06	3109.16			108	F
F	II	3107.73	3106.83	1		538		NI	II	3110.06J	3109.196	8		835	
CU	I	3107.811	3106.912	1		672		MN	II	3110.160	3109.257	80		328	
MN	II	3107.897	3106.995	5		328		FE	III	3110.222	3109.321	1	8.	1015	
CO	I	3107.943	3107.044	3	49.	603		CR	I	3110.24	3109.34	20	163.	341	
V	I	3108.041	3107.142	5	57.	1000		SC	I	3110.25	3109.35	2		1030	M
FE	V	3106.09	3107.19			229	F	V	II	3110.274	3109.375	20	186.	478	
BR	II	3108.093	3107.192	100		606		V	I	3110.32	3109.42	1		489	
SC	II	3108.288	3107.387	1	6.	1015		MN	I	3110.334	3109.435	4		148	
CA	I	3108.293	3107.391	3	16.	1018		CO	I	3110.405	3109.506	4	50.	603	
TI	I	3108.369	3107.468	120	181.	1015		CA	I	3110.407	3109.505	2		1018	
SC	II	3108.430	3107.529	6	33.	1015		FE	III	3110.49	3109.59	1	1.	1015	
CO	I	3108.439	3107.540	1	125.	603		AR	II	3110.613	3109.711	40		506	
CR	II	3108.47	3107.57	50	125.	340		V	II	3110.676	3109.774	12		782	
NA	II	3108.59	3107.69	0		40		CR	I	3110.71	3109.81	1		341	
NI	I	3108.615	3107.714	20	12.	1015		MN	II	3110.719	3109.816	10		328	
MN	I	3108.675	3107.776	20	38.	148		TI	II	3110.82	3109.92		58.	1015	
V	II	3108.861	3107.959	8		782		SE	III	3110.83	3109.93	30		587	
FE	III	3108.879	3107.977	160	29.	288		AR	II	3110.88	3109.98	5		506	
FE	I	3108.879	3107.978	2		378		CO	I	3110.920	3110.021	5	109.	603	
CO	I	3109.124	3108.223	1		603		V	II	3110.97	3110.07	3	139.	478	
V	III	3109.29	3108.39	30		325		FE	III	3110.976	3110.074	285	39.	288	
CU	I	3109.349	3108.452	240		672		TI	II	3110.997	3110.095	8	77.	1015	
CO	I	3109.38	3108.48	1		603		S		3111.	3110.			107	N
SC	II	3109.412	3108.511	3	36.	1015		AS	II	3111.016	3110.114	0		425	
SE	II	3109.44	3108.54	100	19.	468		MN	II	3111.08	3110.18	40		328	
CA	I	3109.455	3108.535	5		1018		SC	I	3111.14	3110.24	1		1028	
V	I	3109.46	3108.56	1		1000		AR	III	3111.31	3110.41	70		79	
CU	I	3109.504	3108.605	450		672		V	IV	3111.318	3110.416	30		829	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	II	3111.3768	3110.4745	2		612		CR	I	3113.862	3112.962	5		341	
CO	I	3111.52	3110.62	5		603		V	IV	3113.925	3113.022	25		829	
TI	II	3111.522	3110.620	20	67.	1015		MN	I	3114.018	3113.118	10		148	
MN	I	3111.580	3110.681	50		148		CR	II	3114.07	3113.17	3		340	
V	II	3111.607	3110.708	700	1.	478		MN	II	3114.13	3113.23	10		328	
CR	I	3111.65	3110.75	5		341		SC	I	3114.26	3113.36	1		1030	M
BE	I	3111.716	3110.814	7		333		MN	I	3114.263	3113.362	4		148	
CO	I	3111.721	3110.821	5	11.	603		CO	I	3114.373	3113.473	6	48.	603	
CR	I	3111.765	3110.866	15	163.	341		CU	I	3114.382	3113.482	50		672	
FE	III	3111.78	3110.88	40	29.	288		AS	II	3114.397	3113.494	5		425	
V	I	3111.8	3110.9	1		1000		V	II	3114.460	3113.560	100	174.	478	
BE	I	3111.820	3110.918	7		333		CR	II	3114.49	3113.59	5	186.	340	
CR	I	3111.885	3110.986	8		341		FE	I	3114.495	3113.592	2		378	
BE	I	3111.888	3110.986	15		333		F	III	3114.519	3113.616	600	1.	537	
P	III	3111.896	3110.994	10		936		O	II	3114.61	3113.71	4	14.	1015	
SE	III	3111.95	3111.05	85		587		MN	I	3114.701	3113.800	15		148	
BE	I	3111.971	3111.068	1		330		FE	III	3114.742	3113.839	5	13.	288	
MN	II	3111.98	3111.08	10		328		V	II	3114.753	3113.850	6		782	
MN	I	3112.046	3111.147	2		148		FE	I	3114.957	3114.054	1	53.	378	
BE	I	3112.137	3111.235	1		330		TI	I	3114.995	3114.092	200	181.	1015	
MN	II	3112.157	3111.256	50		328		CR	I	3115.00	3114.10	1		341	
TI	I	3112.185	3111.283	100	181.	1015		MN	I	3115.015	3114.115	3		148	
ZN	II	3112.2	3111.3	20		154		CO	I	3115.019	3114.118	10	49.	603	
CR	I	3112.212	3111.312	2		341		NI	I	3115.027	3114.124	100	24.	1015	
CO	I	3112.239	3111.339	2	73.	603		N	II	3115.189	3114.286		17.0	521	P
BE	I	3112.322	3111.420	3		330		FE	II	3115.198	3114.295	7	82.	1015	
FE	III	3112.519	3111.616	220	8.	288		AR	II	3115.20	3114.29	5		506	
V	III	3112.573	3111.671	20		325		P	III	3115.210	3114.307	1		936	
FE	I	3112.5873	3111.6847	6	260.	896		AR	II	3115.2848	3114.3815	50		867	
CR	II	3112.64	3111.94	15	55.	340		MN	I	3115.340	3114.440	1		148	
V	II	3112.84	3111.94	0		782		CR	I	3115.355	3114.455	6		341	
TI	II	3112.952	3112.050	10	67.	1015		FE	II	3115.583	3114.680	4	82.	1015	
FE	I	3112.9802	3112.0775	4	455.	896		V	III	3115.644	3114.741	10		325	
SC	I	3113.01	3112.11	1		1030	M	CU	I	3115.678	3114.778	3		672	
V	I	3113.03	3112.13	3		1000		SC	I	3115.68	3114.78	1		1030	M
F	II	3113.10	3112.20	1		538		CR	I	3115.736	3114.835	10		341	
TI	I	3113.384	3112.482	80	92.	1015		TI	II	3115.991	3115.088	1	58.	1015	
AS	II	3113.500	3112.596	40		425		F	II	3116.00	3115.10	10		538	
NE	II	3113.721	3112.818	20		1016		V	II	3116.06	3115.16	2	111.	478	
V	I	3113.83	3112.93	8	56.	1000		FE	V	3116.13	3115.23			229	F



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CR	II	3116.17	3115.27	12	54.	340		TI	I	3118.359	3117.455	60	92.	1015	
MN	I	3116.363	3115.462	40		148		MN	I	3118.407	3117.505	3		148	
P	III	3116.365	3115.461	1		936		FE	II	3118.409	3117.505	0	226.	1015	
FE	II	3116.395	3115.492	1	96.	1015		FE	I	3118.5436	3117.6395	5	29.	896	
CR	I	3116.406	3115.505	5	163.	341		CA	I	3118.554	3117.650	5	16.	1018	
CR	II	3116.55	3115.65	20	46.	340		TI	II	3118.573	3117.669	20	67.	1015	
FE	I	3116.560	3115.656	2		378		S	IV	3118.65	3117.75	300	1.	1015	
NE	II	3116.576	3115.672	80		1016		F	II	3118.660	3117.756	25		538	
F	III	3116.602	3115.698	800	1.	537		NE	II	3118.699	3117.795	30		1016	
O	III	3116.63	3115.73	40	12.	1015		SC	I	3118.72	3117.82	2		1028	
MN	I	3116.655	3115.754	3		148		TI	I	3118.803	3117.899	50	92.	1015	
FE	I	3116.766	3115.862	1	456.	378		NE	II	3118.885	3117.981	100	16.	1016	
V	II	3116.92	3116.02	3	139.	478		NI	II	3118.916	3118.012	2		835	
V	II	3117.01	3116.11	2	139.	478		MN	I	3119.001	3118.099	8		148	
FE	I	3117.155	3116.251	4	165.	896		CR	I	3119.03	3118.13	3		341	
CU	I	3117.249	3116.348	200		672		TI	I	3119.034	3118.130	150	181.	1015	
V	I	3117.25	3116.35	1		1000		CR	II	3119.04	3118.14	10	55.	340	
FE	I	3117.283	3116.379	1	261.	378		NE	II	3119.064	3118.160	120		563	
FE	I	3117.410	3116.510	5	261.	896		CO	I	3119.151	3118.249	5	11	603	
AS	II	3117.4201	3116.5163	340		425		FE	III	3119.17	3118.26	20		288	
FE	II	3117.494	3116.590	6	82.	1015		CU	I	3119.257	3118.355	5		672	
V	II	3117.52	3116.61	1		782		V	II	3119.277	3118.376	550	1.	478	
FE	I	3117.5352	3116.6313	8	28.	896		AS	II	3119.370	3118.466	10		425	
CO	III	3117.59	3116.68	10		673		NI	I	3119.46	3118.56	10	94.	1015	
NE	II	3117.599	3116.695	90		1016		ZN	II	3119.5	3118.6	10		154	
NI	I	3117.618	3116.714	10	95.	1015		CO	I	3119.537	3118.636	1	12.	603	
AS	II	3117.630	3116.726	40		425		CR	II	3119.54	3118.64	60	5.	340	
CO	I	3117.65	3116.75	1		603		CL	IV	3119.56	3118.66			108	
CR	II	3117.65	3116.75	20	126.	340		F	II	3119.572	3118.668	40		538	
NE	II	3117.666	3116.762	90		1016		FE	III	3119.658	3118.754	70	51.	288	
V	II	3117.68	3116.78	40	237.	478		V	III	3119.692	3118.780	20		325	
MN	I	3117.724	3116.822	2		148		N	IV	3119.70	3118.79	5	12.01	824	
F	II	3117.78	3116.88	1		538		CR	I	3119.70	3118.80	4		341	
FE	I	3117.888	3116.984	1	578.	378		TI	II	3119.728	3118.824	2	27.	1015	
AS	II	3117.952	3117.048	1		425		MN	II	3119.826	3118.922	50		328	
NE	II	3118.056	3117.153	50		1016		V	III	3119.858	3118.954	30		325	
V	III	3118.08	3117.18	10		325		FE	I	3119.936	3119.032	0	315.	378	
SC	I	3118.10	3117.20	0		1030	M	CO	I	3120.056	3119.154	1		603	
CR	II	3118.18	3117.28	15	46.	340		CR	I	3120.08	3119.18	3		341	
MN	II	3118.326	3117.422	50		328		CR	I	3120.154	3119.252	20	163.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	III	3120.164	3119.259	20	13.	288		CR	II	3122.11	3121.21	6		340	
V	II	3120.22	3119.32	4	110.	478		V	III	3122.209	3121.304	10		325	
F	II	3120.35	3119.44	10		538		V	IV	3122.210	3121.304	10		829	
NE	II	3120.377	3119.472	20		1016		CU	II	3122.3010	3121.3959	5		612	
FE	I	3120.3989	3119.4944	20	194.	896		CO	I	3122.317	3121.415	10	9.	603	
AS	I	3120.50	3119.60	50	15.	480		V	III	3122.386	3121.481	20		325	
V	III	3120.51	3119.61	2		325		F	III	3122.445	3121.540	1000	1.	537	
SC	I	3120.57	3119.67	1		1028		CO	I	3122.468	3121.566	10	11.	603	
CA	III	3120.570	3119.665	580	7.	64		CR	I	3122.50	3121.60	3		341	
TI	I	3120.629	3119.725	150	137.	1015		CL	II	3122.501	3121.596	245	20.	613	
CR	I	3120.642	3119.704	20	183.	341		TI	II	3122.504	3121.599	1	4.	1015	
TI	II	3120.704	3119.800	15	67.	1015		CU	II	3122.5479	3121.6428	8		612	
CL	III	3120.719	3119.814	132	20.	613		O	III	3122.62	3121.71	60	12.	1015	
BE	I	3120.755	3119.850	1		330		FE	I	3122.6614	3121.7563	5	102.	896	
CL	II	3120.779	3119.875	160	20.	613		V	I	3122.68	3121.78	4	56.	1000	
BE	I	3120.873	3119.968	1		330		V	II	3122.728	3121.823	5		782	
BE	I	3120.924	3120.020	3		330		CR	II	3122.73	3121.83	10	72.	340	
FE	II	3120.928	3120.023	1	96.	1015		CU	II	3122.776	3121.871	3		612	
FE	III	3120.93	3120.03	20	29.	268		MN	II	3122.78	3121.87	10		328	
F	II	3120.964	3120.059	60		538		MN	I	3122.816	3121.914	1		148	
CO	I	3121.00	3120.10	3	74.	603		CU	I	3122.83	3121.93	0		672	
AS	II	3121.095	3120.190	10		425		CR	II	3122.85	3121.95	7	55.	340	
FE	I	3121.125	3120.220	2		379		TI	II	3122.970	3122.065	2	58.	1015	
FE	III	3121.14	3120.24	1	1.	1015		AS	II	3122.982	3122.076	80		425	
MN	I	3121.239	3120.337	30		148		C	II	3122.991	3122.086	4	*28.02	287	
CR	II	3121.26	3120.36	75	5.	340		F	II	3123.00	3122.09	10		538	
V	III	3121.31	3120.40	10		325		BR	II	3123.430	3122.524	10		606	
CU	I	3121.336	3120.435	50		672		SC	II	3123.447	3122.542	1	46.	1015	
FE	I	3121.3394	3120.4346	15	194.	896		CR	II	3123.49	3122.59	30	54.	340	
MN	II	3121.489	3120.584	30		328		O	II	3123.53	3122.62	90	14.	1015	
CR	I	3121.53	3120.63	10		341		FE	I	3123.5728	3122.6674	3	314.	896	
NE	II	3121.540	3120.635	20		1016		MN	I	3123.783	3122.880	10		148	
V	II	3121.628	3120.726	50	138.	478		V	II	3123.790	3122.887	100	173.	478	
FE	III	3121.767	3120.862	40	29.	288		SC	II	3123.859	3122.954	3	39.	1015	
CR	II	3121.94	3121.04	8	72.	340		CR	I	3123.901	3122.998	4		341	
MN	I	3121.974	3121.072	6		148		CU	I	3123.91	3123.00	1		672	
FE	III	3121.98	3121.08	10		1015		TI	I	3123.979	3123.074	150	67.	1015	
V	II	3122.040	3121.138	80	1.	478		MN	II	3124.040	3123.134	50		328	
FE	I	3122.056	3121.151	1	163.	378		FE	III	3124.058	3123.152	285	13.	288	
BR	II	3122.070	3121.165	150		606		V	I	3124.15	3123.25	1		1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CA	II	3124.20	3123.29	25	10.	1015		NA	II	3126.111	3125.208	4		693	
FE	I	3124.2536	3123.3481	4	164.	896		MN	II	3126.134	3125.228	80		328	
NE	II	3124.273	3123.367	10	.	1016		SI	II	3126.17	3125.26	1	18.	678	
NE	II	3124.382	3123.476	70	.	1016		V	II	3126.185	3125.282	400	1.	478	
NE	II	3124.405	3123.500	70	.	1016		CL	II	3126.346	3125.441	160	20.	613	
FE	I	3124.450	3123.545	1		378		CR	II	3126.36	3125.46	7	55.	340	
MN	II	3124.595	3123.688	40		328		F	II	3126.402	3125.496	10		538	
CL	II	3124.622	3123.717	340	20.	613		P	III	3126.415	3125.509	10		936	
CL	III	3124.64	3123.74	100		43		TI	I	3126.456	3125.553	20	192.	1015	
TI	I	3124.672	3123.769	200	181.	1015		F	II	3126.490	3125.584	4		538	
V	III	3124.772	3123.867	3		325		FE	I	3126.5570	3125.6509	40	28.	896	
SC	I	3124.85	3123.95	1		1030	M	TI	I	3126.559	3125.656	20	192.	1015	
O	II	3124.92	3124.02	10.	14.	1015		FE	I	3126.5616	3125.6555	40	160.	896	
FE	I	3125.002	3124.096	3	165.	896		V	II	3126.621	3125.715	15		782	
C	II	3125.039	3124.133	10	28.02	287		F	II	3126.656	3125.750	4		538	
F	II	3125.046	3124.140	40		538		CR	II	3126.69	3125.79	5	186.	340	
P	III	3125.053	3124.147	40		936		CR	I	3126.815	3125.911	8		341	
NE	II	3125.095	3124.189	90		1016		N	II	3126.823	3125.920		17.0	521	P
CL	II	3125.111	3124.206	230	20.	613		CL	II	3126.896	3125.990	125	20.	613	
CR	II	3125.13	3124.23	3		340		SC	II	3126.96	3126.06	1	39.	1015	
AR	II	3125.174	3124.268	10		506		CU	I	3127.012	3126.109	370		672	
V	II	3125.213	3124.307	10		782		FE	I	3127.09	3126.15	40		896	
CU	I	3125.276	3124.373	1		672		MN	I	3127.095	3126.192	2		148	
NA	II	3125.316	3124.414	25		693		NE	I	3127.1051	3126.1986	100		896	
BR	II	3125.583	3124.680	50		606		V	II	3127.119	3126.215	150	1.	478	
CU	II	3125.6287	3124.7229	10		612		FE	V	3127.15	3126.25			229	F
F	III	3125.694	3124.788	600	1.	537		F	II	3127.155	3126.249	1		538	
GE	I	3125.7223	3124.8164	100	5.	7		SI	III	3127.173	3126.267	60	11.	768	
CR	II	3125.84	3124.94	40		340		MG	III	3127.29	3126.38	130		2	
SC	I	3125.84	3124.94	1		1030	M	N	II	3127.31	3126.40	40	58.0	200	
NE	II	3125.854	3124.948	40		1016		CO	I	3127.391	3126.488	1		603	
BE	I	3125.899	3124.993	3		330		V	III	3127.400	3126.494	20		325	
V	II	3125.91	3125.01	20	84.	478		CO	I	3127.628	3126.725	4		603	
MN	I	3125.916	3125.013	8		148		MN	II	3127.641	3126.734	30		328	
FE	I	3125.918	3125.012	1	53.	378		V	II	3127.69	3126.79	2	122.	478	
CR	II	3125.92	3125.02	60	70.	340		FE	I	3127.728	3126.822	1	260.	378	
FE	I	3125.93	3125.03		53.	1015	P	MN	I	3127.749	3126.846	10		148	
BE	I	3126.025	3125.119	3		330		AS	II	3127.7674	3126.8610	100		425	
F	II	3126.033	3125.127	25		538		V	II	3128.043	3127.136	12		782	
CA	II	3126.05	3125.15	60	10	1015		CO	I	3128.156	3127.252	7	26.	603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	II	3128.183	3127.276	5		835		FE	V	3131.42	3130.52			229	F
N	II	3128.277	3127.373		34.0	521	P	CR	II	3131.45	3130.55	7	175.	340	
N	IV	3128.31	3127.41	20	12.01	824		FE	II	3131.466	3130.561	2	66.	1015	
CR	I	3128.492	3127.589	5		341		MN	I	3131.528	3130.624	2		148	
TI	I	3128.588	3127.684	80	180.	1015		CO	II	3131.64	3130.74	8		825	
SC	I	3128.60	3127.70	1		1030	M	CO	II	3131.70	3130.79			825	
AS	II	3128.678	3127.772	0		425		TI	II	3131.709	3130.804	15	4.	1015	
TI	II	3128.787	3127.883	10	121	1015		AR	I	3131.716	3130.809	60		517	
AR	III	3128.80	3127.90	70		79		FE	III	3131.765	3130.858	20		288	
MN	II	3128.853	3127.946	20		328		CU	II	3131.9971	3130.9897	2		612	
CR	II	3128.98	3128.08	4		340		N	II	3131.901	3130.996		17.0	521	P
SC	II	3129.190	3128.286	5	39.	1015		MN	II	3131.928	3131.020	20		328	
V	II	3129.192	3128.288	10	84.	478		BE	II	3131.973	3131.066	750.	1.	332	
MN	II	3129.539	3128.631	30		328		CR	I	3132.118	3131.213	20	183.	341	
TI	I	3129.544	3128.640	80	92.	1015		FE	I	3132.145	3131.238	0		378	
TI	I	3129.544	3128.640	80	192.	1015		V	I	3132.2	3131.3	1		1000	
TI	II	3129.544	3128.640	10	121.	1015		CU	I	3132.23	3131.33	5		672	
CR	II	3129.59	3128.69	40	5.	340		P	III	3132.412	3131.504	10		936	
V	II	3129.590	3128.686	20	83.	478		CR	II	3132.43	3131.53	5	55.	340	
CU	I	3129.605	3128.701	250		672		AS	II	3132.596	3131.687	0		425	
SI	II	3129.68	3128.77	1	7.27	678		FE	II	3132.624	3131.719	4	107.	1015	
FE	I	3129.8046	3128.8977	5	54.	896		CO	I	3132.734	3131.829	1	48.	603	
CO	I	3129.910	3129.006	3		603		V	I	3132.8	3131.9	1		1000	
FE	II	3129.917	3129.013	1	96.	1015		CR	II	3132.95	3132.05	100	5.	340	
FE	III	3129.94	3129.04	1	8.	1015		NE	II	3133.0961	3132.1884	90		389	
TI	I	3129.979	3129.075	70	192.	1015		CO	I	3133.123	3132.218	4	7.	603	
FE	I	3130.082	3129.178	1	161.	605		MN	I	3133.189	3132.284	15		148	
NI	I	3130.218	3129.314	35	12.	1015		FE	I	3133.4256	3132.5178	5	578.	896	
FE	I	3130.2407	3129.3331	5	52.	896		V	II	3133.497	3132.589	30		782	
NA	II	3130.273	3129.368	90	2.	693		MN	I	3133.694	3132.789	10		148	
P	III	3130.289	3129.382	4		936		V	II	3133.698	3132.793	3	122.	478	
O	II	3130.34	3129.44	120	14.	1015		CR	I	3133.721	3132.816	18	183.	341	
CO	I	3130.385	3129.481	3	74.	603		O	III	3133.77	3132.86	90	12.	1015	
V	II	3130.390	3129.484	10		782		V	I	3133.9	3133.0	1		1000	
CR	I	3130.66	3129.76	2		341		FE	II	3133.953	3133.048	4	82.	1015	
MN	I	3130.875	3129.971	3		148		SC	II	3134.001	3133.096	8	39.	1015	
TI	I	3131.080	3130.175	80	180	1015		FE	I	3134.082	3133.174	0		378	
V	II	3131.166	3130.262	100	1	478		NE	VI	3134.1	3133.2	30		885	M
P	III	3131.208	3130.300	120		936		SC	I	3134.22	3133.31	2		1030	M
BE	II	3131.327	3130.420	900	1.	332		V	II	3134.234	3133.329	150	1.	478	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	3134.520	3133.612	6		782		CR	II	3136.65	3135.74	30	94.	340	
CR	I	3134.875	3133.969	5		341		FE	III	3136.706	3135.800	1	77.	1015	
NE	II	3134.974	3134.066	40		1016		NE	II	3136.7235	3135.8148	80	3.	389	
NI	I	3135.014	3134.108	300	25.	1015		AL	II	3136.7568	3135.8507	60	19.	379	
FE	I	3135.0175	3134.1097	10	28.	896		FE	I	3136.7683	3135.8596	5	194.	896	
NE	II	3135.040	3134.132	70		1016		SI	III	3136.815	3135.906	15	11.	768	
F	III	3135.141	3134.233	600	1.	537		CR	I	3136.823	3135.917	7	183.	341	
O	II	3135.23	3134.32	25	14.	1015		S	III	3136.90	3136.00	150	13.	323	
CR	II	3135.24	3134.33	25	94.	340		CA	I	3136.926	3136.018	10	15.	1018	
FE	I	3135.309	3134.401	1		378		TI	I	3136.934	3136.028	20	91.	1015	
SE	II	3135.33	3134.42	350		468		V	III	3136.947	3136.038	20		325	
V	I	3135.44	3134.54	1		1000		BE	I	3136.97	3136.06	15		333	
CO	I	3135.53	3134.62	2		603		FE	I	3137.06	3136.17	3		605	N
FE	I	3135.549	3134.641	0		378		MN	II	3137.22	3136.31	8	15.	328	
TI	I	3135.560	3134.654	10	91.	1015		NE	VI	3137.3	3136.4	64		885	M
MN	II	3135.575	3134.666	40		328		FE	III	3137.33	3136.43	450	39.	288	
MN	II	3135.62	3134.72	3	15.	328		MN	II	3137.38	3136.47	5	15.	328	
BE	I	3135.671	3134.763	7		330		NE	II	3137.385	3136.476	50	3.	1016	
MN	II	3135.73	3134.82	15	15.	328		FE	III	3137.39	3136.49	70	39.	288	
O	II	3135.73	3134.82	250	14.	1015		AR	II	3137.390	3136.481	30		506	
AR	IV	3135.81	3134.90	30	1.	1015		V	II	3137.409	3136.503	160	122.	478	
MN	I	3135.827	3134.922	4		148		CR	II	3137.59	3136.68	45	5.	340	
V	II	3135.833	3134.928	200	122.	478		CO	I	3137.632	3136.726	5	8.	603	
CR	I	3135.88	3134.97	8		341		TI	II	3137.68	3136.77	0	27.	1015	
NE	VI	3135.9	3135.0	64		885	M	MN	II	3137.85	3136.94	7	15.	328	
CU	I	3135.92	3135.01	1		672		MN	I	3137.863	3136.958	10		148	
TI	I	3135.975	3135.069	80	180.	1015		CO	I	3137.905	3136.999	1	48.	603	
V	I	3136.08	3135.17	2		1000		MN	II	3137.96	3137.05	3	15.	328	
CR	I	3136.09	3135.18	1		341		CR	II	3138.01	3137.10	10		340	
MN	I	3136.094	3135.188	2		148		MN	II	3138.21	3137.30	3	15.	328	
CL	VI	3136.1	3135.2			111		CO	I	3138.235	3137.328	10	10.	603	
V	IV	3136.101	3135.192	20		829		TI	I	3138.259	3137.352	10	91.	1015	
CR	II	3136.25	3135.34	20	124.	340		NI	II	3138.272	3137.363	2		835	
FE	II	3136.266	3135.360	9	82.	1015		CR	II	3138.35	3137.44	2	125.	340	
NA	II	3136.389	3135.483	60	3.	693		CO	I	3138.360	3137.454	3	108.	603	
FE	VI	3136.4	3135.5			1034		CR	II	3138.44	3137.53	8	54.	340	
MN	II	3136.42	3135.51	10	15.	328		CR	I	3138.53	3137.62	3		341	
FE	I	3136.498	3135.590	1		378		AR	II	3138.5419	3137.6328	50	71.	867	
MN	II	3136.57	3135.66	5	15.	328		CU	I	3138.62	3137.72	5		672	
MN	II	3136.645	3135.735	40		328		CO	I	3138.661	3137.755	4	49.	603	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
NA	II	3138.759	3137.852	25		693		CO	I	3140.853	3139.947	12	9.	603	
V	II	3138.799	3137.890	15		782		V	I	3140.88	3139.97	4		1000	
C	II	3138.830	3137.920	4	16.07	287		AS	II	3140.908	3139.998	1		425	
V	II	3138.96	3138.05	20	205.	478		TI	II	3140.95	3140.04	M		1015	
NE	II	3138.970	3138.061	80		1016		FE	III	3140.99	3140.08	3	94.	1015	
S		3139.	3138.			107	N	CR	II	3141.12	3140.21	25	124.	340	
CR	I	3139.11	3138.20	15	183.	341		CU	I	3141.219	3140.312	200		672	
FE	II	3139.114	3138.207	1	227.	1015		P	IV	3141.238	3140.328	60		937	
CR	II	3139.12	3138.21	7		340		NE	II	3141.268	3140.358	50		1016	
SI	II	3139.12	3138.21	3	18.	678		CR	I	3141.27	3140.36	5		341	
MN	I	3139.128	3138.222	5		148		FE	I	3141.3001	3140.3903	6	578.	896	
NI	II	3139.148	3138.238	8		835		CU	II	3141.3171	3140.4073	3		612	
CR	I	3139.22	3138.31	8		341		CR	II	3141.57	3140.66	1	124.	340	
CO	I	3139.27	3138.36	2		603		FE	II	3141.600	3140.692	1	227.	1015	
SC	I	3139.27	3138.36	2		1030	M	CO	I	3141.622	3140.715	2	75.	603	
FE	I	3139.309	3138.400	0	53.	378		SC	I	3141.65	3140.74	1		1030	M
O	II	3139.35	3138.44	150	14.	1015		CA	I	3141.696	3140.786	15	15.	1018	
SC	II	3139.37	3138.46	1	39.	1015		AR	II	3141.873	3140.963	20		506	
V	I	3139.41	3138.50	3		1000		V	II	3141.98	3141.07	2	205.	478	
C	VI	3139.55	3138.64			309		SE	II	3142.04	3141.13	500		468	
BE	I	3139.594	3138.685	15		330		N	IV	3142.06	3141.16	40	12.01	824	
F	I	3139.621	3138.715	2		420		CA	I	3142.066	3141.156	7	15.	1018	
NI	II	3139.786	3138.877	8		835		NE	II	3142.2421	3141.3320	120	47.	389	
CO	I	3139.799	3138.893	1		603		V	II	3142.393	3141.486	40	152.	478	
AR	II	3139.9271	3139.0176	140	47.	867		TI	I	3142.445	3141.537	150	66.	1015	
V	I	3139.95	3139.04	3		1000		MN	I	3142.462	3141.555	1		148	
CU	I	3140.08	3139.17	0		672		TI	I	3142.578	3141.670	100	192.	1015	
AR	II	3140.167	3139.257	40		506		CR	II	3142.71	3141.80	4	175.	340	
CL	III	3140.25	3139.34	800	3.	38		MN	I	3142.728	3141.821	5		148	
FE	I	3140.5675	3139.6579	5	155.	896		CR	I	3142.792	3141.885	12	116.	341	
NE	VI	3140.6	3139.7	37		885	M	V	II	3142.905	3141.995	3		782	
SC	II	3140.636	3139.729	10	39.	1015		C	II	3142.950	3142.040	1	16.07	287	
V	II	3140.639	3139.733	160	122.	478		V	II	3143.090	3142.183	20	172.	478	
O	II	3140.68	3139.77	40	14.	1015		FE	II	3143.128	3142.220	0	7.	1015	
CU	II	3140.6982	3139.7885	8		612		FE	III	3143.13	3142.22	2	1.	1015	
MN	II	3140.754	3139.844	40		328		MN	II	3143.213	3142.303	50		328	
TI	I	3140.78	3139.87	100	180.	1015		NE	II	3143.215	3142.305	10		1016	
CR	II	3140.81	3139.90	10	54.	340		MN	I	3143.309	3142.401	1		148	
FE	I	3140.815	3139.908	4		605	N	CU	I	3143.351	3142.444	270		672	
V	V	3140.85	3139.94	80		929		FE	I	3143.3639	3142.4536	8	164.	896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
V	II	3143.391	3142.484	150	52.	478		MN	I	3145.780	3144.872	3		148	
MN	I	3143.577	3142.669	20		148		FE	I	3145.835	3144.924	1	195.	378	
CR	II	3143.64	3142.73	10	85.	340		CO	I	3145.930	3145.022	3	50.	603	
F	III	3143.679	3142.769	250	4.	537		FE	I	3145.9625	3145.0565	5	455.	896	
CU	I	3143.703	3142.797	8		672		V	II	3145.985	3145.074	2		782	
FE	I	3143.7990	3142.8885	10	144.	896		CR	II	3146.02	3145.11	15	5.	340	
FE	V	3143.86	3142.95	229			F	NI	I	3146.030	3145.121	15	7.	1015	
CR	II	3143.88	3142.97	8	125.	340		V	II	3146.245	3145.337	30	1.	478	
CU	II	3143.923	3143.013	2		612		TI	II	3146.311	3145.402	0	10.	1015	
TI	I	3144.07	3143.16	J	28.	1015		TI	II	3146.311	3145.402	0	111.	1015	
V	I	3144.1	3143.2	1		1000		BE	I	3146.336	3145.425	7		330	
FE	I	3144.1531	3143.2425	10	7.	896		NE	II	3146.336	3145.425	10		1016	
TI	I	3144.25J	3143.350	120	180.	1015		MN	I	3146.367	3145.458	2		148	
FE	III	3144.297	3143.386	20	13.	268		CO	I	3146.40	3145.49	15		603	
BR	II	3144.356	3143.448	10		606		V	III	3146.420	3145.510	2		325	
V	II	3144.385	3143.477	15	122.	478		TI	I	3146.424	3145.515	10	91.	1015	
BR	II	3144.398	3143.490	50	10.	488		F	III	3146.449	3145.538	300	1.	537	
CR	II	3144.58	3143.67	7	53.	340		CR	I	3146.53	3145.62	10		341	
TI	II	3144.59	3143.68	37.		1015		V	I	3146.56	3145.65	1		1000	
NE	II	3144.6313	3143.7207	100	24.	369		MN	II	3146.591	3145.679	80		328	
CR	I	3144.65	3143.74	2		341		NA	II	3146.605	3145.696	25		693	
TI	II	3144.664	3143.756	10	4.	1015		NI	I	3146.628	3145.719	40	11.	1015	
CO	I	3144.72	3143.81	2		603		MN	I	3146.635	3145.727	1		148	
AR	II	3144.802	3143.891	30		506		CR	II	3146.67	3145.76	15	85.	340	
CR	II	3144.81	3143.90	7	94.	340		V	II	3146.776	3145.865	2		782	
NI	II	3144.859	3143.948	8		835		AR	II	3146.811	3145.900	20		506	
FE	I	3144.901	3143.990	15	578.	896		V	II	3146.880	3145.971	20	1.	478	
V	III	3144.991	3144.080	2		325		CU	II	3146.9234	3146.0122	5		612	
MN	I	3145.027	3144.119	1		148		MN	II	3147.009	3146.116	30		328	
FE	III	3145.091	3144.180	5		288		V	II	3147.134	3146.226	40	138.	478	
MN	I	3145.130	3144.222	1		148		AS	II	3147.181	3146.269	0		425	
P	III	3145.152	3144.241	90		936		NA	II	3147.202	3146.292	60		693	
CR	I	3145.30	3144.39	12	92.	341		MN	I	3147.232	3146.324	6		148	
MN	II	3145.37	3144.45	40		328		BR	II	3147.324	3146.415	10		606	
FE	I	3145.3946	3144.4837	6	161.	896		AR	II	3147.3377	3146.4264	40	49.	867	
O	V	3145.57	3144.66	160		83		FE	I	3147.3790	3146.4676	0	160.	896	
V	II	3145.608	3144.700	20	122.	478		FE	II	3147.657	3146.748	2	67.	1015	
TI	II	3145.639	3144.730	1	111.	1015		V	I	3147.7	3146.8	1		1000	
TI	II	3145.65	3144.74	M	10.	1015		V	II	3147.727	3146.818	10	138.	478	
FE	II	3145.660	3144.751	5	82.	1015		CU	I	3147.730	3146.821	210		672	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	I	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SC	II	3147.82	3146.91	1	39.	1015			CU	I	3150.417	3149.508	30		672	
F	III	3147.898	3146.987	600	1.	537			NI	II	3150.437	3149.525	5		835	
CO	I	3147.968	3147.060	15	10.	603			MN	I	3150.438	3149.529	6		148	
CR	II	3148.13	3147.22	50	5.	340			NA	II	3150.47	3149.51	400		40	
V	I	3148.163	3147.255	8		1000			SI	IV	3150.472	3149.561	500	2.	767	
F	II	3148.183	3147.271	10		538			CU	II	3150.594	3149.681	3		612	
FE	I	3148.202	3147.291	4		896	M		NI	II	3150.613	3149.700	10		835	
SI	III	3148.283	3147.371	80	11.	768			P	III	3150.628	3149.716	4		936	
F	II	3148.340	3147.428	4		538			CR	II	3150.73	3149.82	20	54.	340	
F	II	3148.437	3147.525	1		538			SI	II	3150.83	3149.92	2	26.	678	
FE	I	3148.515	3147.603	5		896	M		MN	I	3150.837	3149.928	5		148	
NE	I	3148.611	3147.701	25		723			MN	II	3150.844	3149.931	30		328	
HE	I	3148.690	3147.779	M		497			V	I	3150.94	3150.03	2		1000	
FE	I	3148.7070	3147.7954	4	455.	896			BE	I	3150.99	3150.08	25		333	
CL	II	3148.748	3147.837	190	10.	613			CR	II	3151.02	3150.11	20	54.	340	
CR	II	3148.75	3147.84	1	93.	340			CU	II	3151.1757	3150.2634	1		612	
F	II	3148.869	3147.957	200		538			N	II	3151.186	3150.276		58.0	521	P
V	I	3148.88	3147.97	3		1000			FE	I	3151.2196	3150.3073	4	578.1	896	
TI	II	3148.943	3148.033	12	4.	1015			TI	III	3151.229	3150.317	7		227	
FE	I	3149.090	3148.178	1		378			MN	II	3151.338	3150.426	30		328	
MN	I	3149.091	3148.182	140	19.	148			AR	II	3151.422	3150.510	40		506	
AR	II	3149.114	3148.202	50		506			V	I	3151.50	3150.59	5		1000	
NI	II	3149.118	3148.207	4		835			MN	I	3151.525	3150.616	2		148	
V	II	3149.230	3148.318	2		782			CU	I	3151.5546	3150.6422	25		612	
CU	I	3149.242	3148.333	3		672			CR	I	3151.56	3150.65	4		341	
FE	I	3149.3182	3148.4064	4	194.	896			CO	I	3151.565	3150.655	2		603	
CR	I	3149.35	3148.44	20	115.	341			HE	I	3151.625	3150.713	M		497	
CU	I	3149.48	3148.57	2		672			CA	I	3151.663	3150.751	20	15.	1018	
NE	I	3149.5229	3148.6107	6		896			FE	I	3151.674	3150.762	1	813.	378	
NE	II	3149.583	3148.672	100		1016			MN	I	3151.710	3150.800	1		148	
FE	I	3149.588	3148.676	0		378			CO	I	3151.729	3150.819	2		603	
V	II	3149.647	3148.738	15	249.	478			BR	II	3151.85	3150.94	10		606	
CU	II	3149.6989	3148.7869	2		612			CU	II	3151.9630	3151.0505	75		612	
MN	I	3149.766	3148.857	8		148			TI	I	3152.02	3151.11	J	28.	1015	
NI	II	3149.782	3148.870	10		835			NE	II	3152.0495	3151.1370	90	16.	389	
CR	II	3150.02	3149.11	4	84.	340			NI	I	3152.170	3151.259	20		1015	N
CR	I	3150.12	3149.21	1		341			CA	I	3152.179	3151.266	7	15.	1018	
NA	II	3150.177	3149.267	60	4.	1015			V	II	3152.228	3151.319	100	138.	478	
CO	I	3150.219	3149.310	10	9.	603			FE	I	3152.264	3151.352	20	311.	896	
FE	I	3150.404	3149.492	1	453.	378			CO	III	3152.31	3151.40	2		673	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	I	3152.325	3151.415	10		148		CR	II	3155.01	3154.10	3	69.	340	
P	III	3152.342	3151.429	25		936		FE	I	3155.019	3154.106	1	53.	378	
NE	II	3152.509	3151.596	40		1016		HE	I	3155.069	3154.156	M		497	
CU	I	3152.53	3151.62	8		672		TI	II	3155.106	3154.195	12	10.	1015	
CA	I	3152.550	3151.638	2	15.	1018		FE	II	3155.115	3154.201	6	66.	896	
CR	I	3152.640	3151.703	3		341		AR	II	3155.202	3154.289	20		506	
C	III	3152.760	3151.850	1	5.01	34		MG	III	3155.25	3154.34	100		2	
FE	III	3152.77	3151.86	5		1015		F	III	3155.325	3154.412	300	4.	537	
FE	I	3152.7786	3151.8658	6	7.	896		FE	I	3155.3288	3154.4155	6	100.	896	
CO	I	3153.029	3152.120	1		603		FE	I	3155.4094	3154.4960	3	161.	896	
TI	II	3153.05	3152.14	M	27.	1015		TI	III	3155.431	3154.518	15		227	
CR	II	3153.12	3152.21	40	71.	340		NI	I	3155.497	3154.585	10	78.	1015	
MN	I	3153.158	3152.248	5		148		P	III	3155.521	3154.607	4		936	
TI	II	3153.162	3152.251	15	10.	1015		CR	I	3155.54	3154.62	1		341	
CU	I	3153.20	3152.29	1		672		CO	I	3155.588	3154.678	5	108.	603	
MN	I	3153.427	3152.517	P	4	148		CO	I	3155.704	3154.794	10	73.	603	
AR	II	3153.526	3152.613	30		506		NE	II	3155.7070	3154.7936	70	13.	389	
CO	I	3153.617	3152.707	6	73.	603		V	II	3155.71	3154.80	1	249.	478	
V	I	3153.66	3152.75	2		1000		CR	III	3155.72	3154.81	5		490	
V	II	3153.785	3152.872	2		782		NE	II	3155.906	3154.993	3		896	
CR	I	3153.798	3152.888	12	116.	341		C	III	3156.000	3155.090	5	5.01	34	
CU	II	3153.8129	3152.9000	30		612		MN	I	3156.005	3155.094	1		148	
CR	I	3153.90	3152.99	10		341		FE	I	3156.0304	3155.1169	3	161.	896	
CR	I	3153.93	3153.02	4		341		CR	I	3156.072	3155.161	20	115.	341	
FE	I	3153.9632	3153.0502	4	99.	896		CR	I	3156.16	3155.25	3		341	
P	III	3154.008	3153.095	4		936		FE	I	3156.2072	3155.2936	6	193.	896	
FE	I	3154.1125	3153.1994	10	161.	896		LI	II	3156.222	3155.308	60		307	
FE	I	3154.2275	3153.3144	4	160.	896		LI	II	3156.244	3155.330	80		307	
MN	I	3154.303	3153.393	7		148		CU	II	3156.2896	3155.3760	4		612	
NE	I	3154.3241	3153.4017	6		896		V	II	3156.320	3155.409	60	51.	478	
F	II	3154.406	3153.493	500		538		MN	II	3156.36	3155.44	10		328	
V	I	3154.45	3153.54	5		1000		TI	II	3156.41	3155.50	M	27.	1015	
CR	I	3154.458	3153.547	10	200.	341		TI	II	3156.54	3155.63	M	37.	1015	
NE	II	3154.591	3153.678	70		1016		TI	II	3156.582	3155.670	12	10.	1015	
CO	I	3154.602	3153.692	1	7.	603		MN	I	3156.692	3155.781	10		148	
FE	I	3154.665	3153.751	4		896	M	FE	I	3156.710	3155.796	4	192.1	896	
AR	II	3154.695	3153.782	40	118.	506		CU	II	3156.746	3155.832	2		612	
AR	II	3154.860	3153.947	5		506		TI	II	3156.82	3155.91	M	121.	1015	
CR	II	3154.95	3154.04	3	53.	340		P	III	3156.832	3155.918	4		936	
CU	II	3155.0068	3154.0935	6		612		FE	II	3156.862	3155.950	2	67.	1015	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	I	3157.005	3156.094	2		341		HE	I	3159.148	3158.234	M		497	
O	V	3157.02	3156.11	80		83		CO	I	3159.204	3158.293	1	12.	603	
F	III	3157.041	3156.127	50	4.	537		CO	I	3159.369	3158.458	1		603	
V	I	3157.10	3156.19	10		1000		SC	I	3159.45	3158.54	1		1030	M
MN	I	3157.157	3156.245	2		148		CU	II	3159.5873	3158.6729	30		612	
FE	I	3157.1872	3156.2734	10	578.	896		MN	I	3159.646	3158.723	10		148	
CU	II	3157.1958	3156.2820	20		612		V	I	3159.68	3158.77	1		1000	
NE	II	3157.246	3156.333	10		1016		CO	I	3159.683	3158.772	12	10.	603	
MN	I	3157.303	3156.392	1		148		CR	I	3159.725	3158.814	4		341	
MN	II	3157.34	3156.43	25		328		CA	II	3159.783	3158.869	460	4.	186	H
FE	I	3157.3770	3156.4631	4	454.	896		FE	I	3159.90	3158.99	2	452.	605	
MG	III	3157.42	3156.51	7		2		CR	II	3160.01	3159.10	7	5.	340	
CU	I	3157.543	3156.629	210	14.	672		FE	I	3160.163	3159.248	1	259.	378	
TI	IV	3157.632	3156.718	4		721		MN	II	3160.22	3159.30	30		329	
V	I	3157.80	3156.89	2		1000		V	II	3160.277	3159.365	20	83.	478	
FE	I	3157.9498	3157.0358	20	160.	896		FE	I	3160.351	3159.437	1		378	
CO	I	3158.001	3157.090	1		603		NI	I	3160.434	3159.521	15	11.	1015	
C	II	3158.040	3157.130	1	38.01	287		NA	II	3160.45	3159.53	1		693	
FE	I	3158.057	3157.143	4	144.	896		CR	I	3160.49	3159.58	20	92.	341	
SI	III	3158.073	3157.159	3	11.	768		CO	I	3160.573	3159.662	10	9.	603	
TI	II	3158.309	3157.397	2	4.	1015		N	V	3160.67	3159.75	10	2.	313	
AR	III	3158.33	3157.42	50		79		MN	I	3160.737	3159.825	4		148	
SC	II	3158.35	3157.44		32.	1015	P	CR	II	3160.77	3159.86	3	54.	340	
CR	II	3158.43	3157.52	2	93.	340		V	I	3160.78	3159.87	2		1000	
MN	II	3158.53	3157.61	1		328		CR	I	3160.821	3159.909	3		341	
P	III	3158.543	3157.629	60		936		NE	II	3160.852	3159.937	30		1016	
MN	I	3158.570	3157.658	3		148		MN	I	3160.864	3159.952	20		148	
V	II	3158.61	3157.70	3		478		CU	I	3160.956	3160.047	25		672	
MN	I	3158.722	3157.811	3		148		TI	I	3161.00	3160.09		28.	1015	
AS	II	3158.7406	3157.8264	80		425		CR	II	3161.02	3160.11	5	54.	340	
FE	I	3158.8000	3157.8858	12	164.	896		MN	I	3161.067	3160.155	6		148	
CU	II	3158.8043	3157.8901	0		612		FE	I	3161.1119	3160.1971	6	578.	896	
V	II	3158.811	3157.900	40	50.	478		FE	I	3161.2568	3160.3420	20	192.1	896	
FE	I	3158.9012	3157.9869	3	159.	896		CL	II	3161.450	3160.535	110		613	
CU	I	3158.94	3158.02	1		672		CL	II	3161.526	3160.611	15		613	
CR	II	3158.94	3158.03	10	70.	340		CR	I	3161.528	3160.617	8	115.	341	
FE	III	3159.06	3158.14	1		288		FE	I	3161.5725	3160.6575	25	155.	896	
GA	II	3159.09	3158.18	10		652		BE	I	3161.682	3160.768	25		330	
FE	I	3159.097	3158.183	4		896		V	II	3161.693	3160.781	15	138.	478	
AR	II	3159.122	3158.208	5		506		MN	I	3161.962	3161.050	140	19.	148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
NA	II	3162.08	3161.16	1		693		MN	I	3164.447	3163.534	1		148	
TI	II	3162.118	3161.205	25	10.	1015		AR	II	3164.451	3163.535	20	118.	506	
V	II	3162.225	3161.313	30	151.	478		NE	II	3164.494	3163.578	30		1016	
FE	I	3162.2863	3161.3712	5	52.	896		CU	II	3164.5995	3163.6838	5		612	
AR	II	3162.2877	3161.3726	130	97.	867		NA	II	3164.644	3163.730	90	7.	693	
N	V	3162.30	3161.38	25	2.	313		P	III	3164.661	3163.745	120		936	
CL	II	3162.340	3161.425	220	11.	613		V	II	3164.67	3163.76	10	249.	478	
AR	II	3162.371	3161.456	80		506		CR	I	3164.677	3163.764	25	115.	341	
FE	I	3162.473	3161.558	1	195.	378		BE	I	3164.76	3163.84	3		333	
SI	III	3162.525	3161.610	100	8.1	768		FE	II	3164.787	3163.871	6	79.	896	
CO	I	3162.564	3161.652	5	73.	603		V	I	3164.80	3163.89	4		1000	
TI	II	3162.57	3161.66	M	27.	1015		CR	II	3164.84	3163.93	10	69.	340	
TI	II	3162.669	3161.755	30	10.	1015		CR	I	3164.90	3164.055	3	200.	341	
V	III	3162.72	3161.79	30		325		NA	II	3165.07	3164.16	500		40	
V	I	3162.8	3161.9	3		1000		NI	I	3165.080	3164.166	10	79.	1015	
C	III	3162.830	3161.920	20	5.01	34		NE	II	3165.144	3164.228	20		1016	
FE	II	3162.859	3161.945	5	7.	1015		CR	II	3165.19	3164.28	4	46.	340	
FE	I	3162.8620	3161.9467	12	160.	896		FE	II	3165.191	3164.275	5	79.	896	
CU	II	3162.9587	3162.0434	15		612		FE	I	3165.2122	3164.2963	4	163.	896	
FE	III	3162.99	3162.07	1		288		NE	II	3165.3453	3164.4294	100	14.	389	
MN	I	3163.123	3162.210	1		148		CR	II	3165.39	3164.48	1	118.	340	
P	III	3163.195	3162.279	90		936		V	I	3165.4	3164.5	1		1000	
FE	I	3163.2458	3162.3305	5	159.	896		CR	I	3165.405	3164.492	4		341	
F	II	3163.278	3162.363	25		538		CA	I	3165.520	3164.604	3	14.	1018	
V	II	3163.280	3162.367	10		478		NE	II	3165.5798	3164.6638	120	47.	389	
CR	II	3163.37	3162.46	10	46.	340		FE	III	3165.603	3164.687	70	8.	288	
P	III	3163.438	3162.522	10		936		MN	II	3165.69	3164.77	5		328	
TI	II	3163.484	3162.570	35	10.	1015		V	II	3165.73	3164.82	40	8.	478	
AS	II	3163.523	3162.608	150		425		TI	II	3165.82	3164.91	8		1015	
V	II	3163.627	3162.714	30	83.	478		FE	I	3165.9152	3164.9992	5	162.	896	
FE	II	3163.713	3162.799	8	120.	1015		FE	I	3165.9176	3165.0016	5	155.	896	
V	II	3163.936	3163.024	30	84.	478		O	II	3166.0	3165.1	4		169	
FE	II	3164.005	3163.091	5	7.	1015		TI	II	3166.15	3165.24	M	37.	1015	
HE	I	3164.029	3163.114	M		497		MN	I	3166.166	3165.253	1		148	
V	II	3164.103	3163.187	4		782		AR	II	3166.204	3165.288	60		506	
NA	II	3164.159	3163.245	4		693		SI	III	3166.29	3165.38	7		768	
SI	III	3164.197	3163.281	7		768		MN	II	3166.357	3165.440	30		328	
MN	I	3164.278	3163.365	1		148		C	II	3166.383	3165.467	200	9.	287	
CR	II	3164.28	3163.37	3		340		NI	I	3166.423	3165.506	15	21	1015	
AS	II	3164.440	3163.524	0		425		V	I	3166.50	3165.59	3		1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
NE	II	3166.5651	3165.6489	100	14.	389		V	II	3168.808	3167.891	3		782	
SI	IV	3166.626	3165.710	850	2.	767		FE	I	3168.840	3167.923	6	578.	896	
BR	II	3166.757	3165.842	10		606		C	II	3168.848	3167.931	150	9.	287	
FE	I	3166.7740	3165.8578	6	160.	896		MN	I	3168.849	3167.935	1		148	
F	III	3166.799	3165.883	200	1.	537		MN	II	3168.97	3168.05	4		328	
V	II	3166.80	3165.89	30	84.	478		CO	I	3168.973	3168.060	6	108.	603	
MG	II	3166.85	3165.94	20	14.	1015		O	V	3169.02	3168.10	60		83	
FE	II	3166.853	3165.936	3		896		V	II	3169.041	3168.127	40	8.	478	
C	II	3166.890	3165.974	40	9.	287		FE	III	3169.13	3168.21	1	94.	1015	
NE	II	3167.0967	3166.1803	70		389		MN	II	3169.133	3168.216	30		328	
AS	II	3167.1021	3166.1857	100		425		MN	I	3169.168	3168.254	4		148	
FE	I	3167.175	3166.259	2	155.	378		CR	II	3169.30	3168.39	7		340	
V	II	3167.30	3166.39	8.	84.	478		FE	I	3169.379	3168.462	3		896	M
FE	I	3167.3517	3166.4353	15	259	896		TI	II	3169.435	3168.519	40	10.	1015	
CU	II	3167.5043	3166.5879	20		612		FE	I	3169.517	3168.600	3		896	M
FE	II	3167.585	3166.670	4	6.	1015		BE	I	3169.519	3168.602	3		330	
MN	I	3167.741	3166.827	10		148		MN	I	3169.594	3168.680	2		148	
FE	I	3167.898	3166.982	1	455.	378		CR	I	3169.660	3168.745	5		341	
FE	IX	3167.9	3167.0			806	H	FE	I	3169.7708	3168.8538	3	160.	896	
NI	II	3168.001	3167.084	20		835		MN	II	3169.82	3168.91	2		328	
AS	II	3168.066	3167.150	1		425		MG	II	3169.867	3168.951	160	14.	592	
MN	I	3168.067	3167.153	2		148		HE	I	3169.938	3169.021	M		497	
CR	I	3168.070	3167.156	2		341		MN	II	3169.96	3169.05	0		328	
V	II	3168.157	3167.240	10		782		O	II	3170.1	3169.2	4		168	
MG	III	3168.17	3167.25	7		2		CR	II	3170.11	3169.20	25	123.	340	
V	II	3168.334	3167.420	40	217.	478		V	II	3170.12	3169.21	2	65.	478	
CR	I	3168.35	3167.44	5		341		NE	II	3170.225	3169.308	5	16.	1016	
AR	II	3168.381	3167.464	30		506		MN	I	3170.269	3169.356	4		148	
V	II	3168.40	3167.49	30	236.	478		FE	III	3170.35	3169.43	40		288	
NA	II	3168.401	3167.486	10		693		CI	II	3170.380	3169.463	79		613	
MN	II	3168.44	3167.52	2		328		CR	I	3170.493	3169.578	8	115.	341	
FE	III	3168.470	3167.553	5	28.	288		V	I	3170.5	3169.6	1		1000	
NE	I	3168.493	3167.5762	4		896		AR	II	3170.5856	3169.6685	140	47.	867	
MN	I	3168.533	3167.619	3		148		CU	I	3170.596	3169.681	220		672	
F	IV	3168.66	3167.74	4		173		CO	I	3170.681	3169.766	9	109.	603	
FE	I	3168.708	3167.792	1	99.	378		CA	I	3170.755	3169.838	7	14.	1018	
MN	I	3168.741	3167.827	8		148		CR	II	3170.77	3169.86	2	173.	340	
TI	III	3168.745	3167.828	25		227		MN	II	3170.831	3169.914	50		328	
FE	II	3168.774	3167.857	6		896		C	III	3170.933	3170.016	70	8.	34	
CL	IV	3168.79	3167.87	200		43		CL	II	3171.117	3170.200	155		613	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
V	II	3171.122	3170.208	8	217.	478		CL	II	3173.495	3172.577	70		613	
FE	II	3171.253	3170.337	6	6.	1015		MN	II	3173.603	3172.685	10		328	
SC	II	3171.32	3170.40	1	32.	1015		MG	II	3173.624	3172.706	160	13.	592	
SI	II	3171.32	3170.40	1	11.	678		TI	I	3173.648	3172.731	40	65.	1015	
MN	I	3171.341	3170.427	4		148		AR	II	3173.7794	3172.8614	40		867	
CR	III	3171.43	3170.52	5		490		MN	II	3173.856	3172.937	80		328	
AS	II	3171.596	3170.678	5		425		N	III	3173.89	3172.97	10		246	N
CR	III	3171.61	3170.70	20		490		CO	I	3174.055	3173.140	1	48.	603	
CU	II	3171.6111	3170.6936	5		612		FE	I	3174.329	3173.410	4	333.	896	
CR	II	3171.62	3170.71	2		340		MN	II	3174.381	3173.463	40		328	
NI	I	3171.631	3170.715	10	78.	1015		CL	II	3174.431	3173.512	17		613	
MN	II	3171.65	3170.74	3		328		CO	I	3174.47	3173.56	1	138.	603	
MN	II	3171.711	3170.800	50		328		NE	II	3174.492	3173.574	90	13.	1016	
FE	III	3171.87	3170.95	5		288		CR	II	3174.50	3173.58	15	83.	340	
TI	IV	3171.872	3170.955	10		721		FE	I	3174.5260	3173.6078	6	333.	896	
N	III	3172.06	3171.14	4		246	N	CU	II	3174.5274	3173.6092	3		612	
FE	I	3172.2606	3171.3429	10		896		CL	II	3174.565	3173.647	190		613	
FE	I	3172.2689	3171.3513	10	548.	896		NE	II	3174.589	3173.671	80		563	
AR	II	3172.321	3171.403	30		506		FE	I	3174.608	3173.690	8	101.	896	
ZN	II	3172.37	3171.45	100		154		MN	I	3174.760	3173.845	3		148	
CU	II	3172.5421	3171.6244	3		612		CR	II	3174.85	3173.93	2	175.	340	
AR	III	3172.56	3171.64	20		79		MN	II	3174.95	3174.03	0		328	
CU	I	3172.578	3171.663	5		672		V	II	3174.992	3174.077	30	84.	478	
FE	I	3172.5810	3171.6633	3	160.	896		FE	III	3175.007	3174.089	450	38.	288	
CO	II	3172.62	3171.70	2		825		CO	I	3175.056	3174.140	2		603	
V	II	3172.654	3171.739	9	217.	478		F	III	3175.088	3174.170	1000	2.	537	
P	III	3172.692	3171.774	120		936		V	II	3175.127	3174.209	2		782	
FE	I	3172.981	3172.067	2	99.	605		FE	III	3175.249	3174.331	5		288	
CR	II	3172.99	3172.08	40	71.	340		V	II	3175.447	3174.531	60	217.	478	
FE	I	3173.0016	3172.0838	5	99.	896		FE	III	3175.53	3174.61	1		288	
V	III	3173.025	3172.107	20		325		BR	II	3175.57	3174.66	10		606	
MN	II	3173.04	3172.13	1		328		MN	I	3175.662	3174.746	20		148	
V	II	3173.145	3172.230	7	249.	478		F	III	3175.682	3174.764	900	2.	537	
ZN	II	3173.15	3172.23	100		154		TI	II	3175.72	3174.80	5		1015	
FE	I	3173.210	3172.292	1	312.	378		CO	I	3175.820	3174.905	4	71.	603	
O	V	3173.22	3172.31	40		83		AS	II	3175.846	3174.928	80		425	
AS	II	3173.225	3172.308	1		425		CU	II	3175.8865	3174.9680	10		612	
CR	III	3173.26	3172.35	2		490		CR	I	3175.95	3175.03	2		341	
NE	II	3173.389	3172.471	80		1016		P	II	3175.954	3175.035	25		496	
FE	V	3173.48	3172.56			229	F	FE	II	3175.994	3175.077	4	157.	1015	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NA	II	3176.004	3175.086	25		693		FE	II	3178.455	3177.536	5	82.	896	
P	V	3176.010	3175.091	700		524		FE	I	3178.46	3177.54	2	159.	605	
P	V	3176.06	3175.14	40		597		MN	I	3178.532	3177.616	5		148	
FE	I	3176.233	3175.314	5		896		CR	I	3178.576	3177.659	3		341	
CL	II	3176.234	3175.315	163		613		CL	II	3178.60	3177.68	5		613	
MN	I	3176.270	3175.355	3		148		V	II	3178.612	3177.696	6	217.	478	
P	III	3176.320	3175.402	10		936		CU	II	3178.6584	3177.7392	15		612	
FE	I	3176.3641	3175.4454	80	155.	896		NE	II	3178.659	3177.740	50		563	
MN	I	3176.491	3175.576	12		148		CR	XI	3178.7	3177.8			726	F
AS	II	3176.506	3175.587	2		425		V	I	3178.75	3177.83	1		1000	
CR	I	3176.514	3175.598	4		341		D	IV	3178.81	3177.89	90	7.	86	
TI	II	3176.58	3175.66	2	120.	1015		CR	II	3178.82	3177.90	1	40.	340	
CU	I	3176.59	3175.67	60		672		FE	I	3178.8733	3177.9590	20	159.	896	
MN	I	3176.629	3175.713	10		148		CU	II	3178.8885	3177.9692	15		612	
MG	II	3176.702	3175.783	220	13.	592		FE	III	3178.92	3178.01	450	38.	288	
FE	I	3176.89	3175.97	1	333.	605		FE	I	3178.9326	3178.0133	20	156.	896	
FE	III	3176.912	3175.993	450	38.	288		CL	II	3179.04	3178.13	4		613	
F	IV	3177.00	3176.08	10		173		FE	I	3179.231	3178.312	3		896	M
NE	II	3177.0389	3176.1201	90	16.	389		MN	I	3179.418	3178.501	140	19.	148	
V	III	3177.046	3176.127	60		325		FE	I	3179.4569	3178.5375	4	454.	896	
HE	I	3177.186	3176.267	M		497		ZN	II	3179.503	3178.585	20		154	
FE	I	3177.197	3176.278	1	578.	378		TI	II	3179.549	3178.630	3	120.	1015	
NI	I	3177.210	3176.292	10	77.	1015		MN	I	3179.647	3178.730	2		148	
CU	II	3177.2283	3176.3094	2		612		CR	II	3179.72	3178.80	7	173.	340	
CR	III	3177.28	3176.36	5		490		FE	I	3179.8823	3178.9627	15	192.1	896	
FE	I	3177.2801	3176.3612	4	258.	896		NA	II	3179.972	3179.053	60	7.	693	
NE	II	3177.471	3176.552	90		1016		FE	III	3180.00	3179.08	1	38.	1015	
CR	II	3177.52	3176.60	4		340		CR	I	3180.200	3179.283	10	92.	341	
SC	II	3177.62	3176.70		32.	1015	P	TI	I	3180.210	3179.291	30	65.	1015	
P	III	3177.672	3176.753	10		936		CU	II	3180.237	3179.317	2		612	
FE	III	3177.757	3176.838	40	38.	288		B	II	3180.251	3179.331	150		532	
N	II	3177.79	3176.87		0.0	521	P	CA	II	3180.252	3179.332	520	4.	186	H
O	V	3177.79	3176.87	60		83		CU	I	3180.260	3179.343	2		672	
FE	V	3177.84	3176.92			229	F	V	II	3180.333	3179.416	8	217.	478	
CL	II	3177.884	3176.964	19		613		CR	II	3180.38	3179.46	8	82.	340	
MN	I	3177.961	3177.044	10		148		FE	I	3180.396	3179.479	1	52.	605	
FE	II	3178.176	3177.260	1	79.	645		FE	II	3180.423	3179.504	8	157.	1015	
CO	I	3178.182	3177.266	8		603		FE	I	3180.45	3179.53	6	52.	896	
CO	II	3178.21	3177.29	15		825		NI	II	3180.540	3179.620	20		835	
CR	II	3178.42	3177.50	1		340		CU	II	3180.7044	3179.7846	50		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	I	3180.745	3179.828	1		603		CU	II	3183.0920	3182.1717	75		612	
V	II	3180.949	3180.029	1		782		AS	II	3183.305	3182.385	2		425	
V	I	3181.01	3180.09	1		1000		MN	I	3183.406	3182.498	2		148	
AL	III	3181.031	3180.111	40		826		TI	II	3183.49	3182.57	6	122.	1015	
FE	II	3181.083	3180.164	7	157.	1015		V	II	3183.51	3182.59	20	217.	478	
FE	III	3181.09	3180.17		38.	1015	P	V	II	3183.591	3182.674	20	150.	478	
FE	I	3181.1434	3180.2236	50	155.	896		V	I	3183.68	3182.76	1		1000	
TI	II	3181.144	3180.225	2	120.	1015		FE	I	3183.8980	3182.9774	10	100.	896	
CO	I	3181.207	3180.290	2	106.	603		NI	I	3183.958	3183.038	15	78.	1015	
CU	II	3181.2130	3180.2931	4		612		MN	II	3184.01	3183.09	2		328	
CL	II	3181.357	3180.437	66		613		FE	II	3184.035	3183.115	8	7.	1015	
CA	I	3181.438	3180.518	10	14.	1018		NI	I	3184.171	3183.251	20	78.	1015	
V	I	3181.48	3180.56	1		1000		CR	II	3184.25	3183.33	40	82.	340	
ZN	II	3181.54	3180.62	5		154		MN	II	3184.266	3183.373	40		328	
CO	III	3181.55	3180.64	2		673		V	I	3184.330	3183.415	150	14.	1000	
BE	II	3181.6	3180.7			862		FE	I	3184.371	3183.450	5		896	M
CR	II	3181.62	3180.70	75	9.	340		MN	II	3184.481	3183.560	80		328	
FE	I	3181.6754	3180.7554	50	7	896		FE	I	3184.499	3183.578	3	192.1	896	
AS	III	3181.70	3180.78	30		404		V	III	3184.63	3183.71	50		325	
CU	II	3181.713	3180.793	2		612		AL	III	3184.745	3183.824	70		826	
O	IV	3181.80	3180.87	150	7.	86		CL	II	3184.85	3183.93	5		613	
P	III	3181.819	3180.899	25		936		V	I	3184.88	3183.96	125	14.	1000	
AR	II	3181.9576	3181.0376	130	47.	867		V	I	3184.913	3183.995	150	14.	1000	
CL	II	3182.173	3181.253	18		613		CR	I	3184.94	3184.02	2		341	
MN	I	3182.186	3181.269	1		148		MN	II	3184.957	3184.035	20		328	
CA	II	3182.195	3181.275	360	4.	186	H	TI	II	3185.01	3184.09	2	3.	1015	
P	III	3182.198	3181.278	40		936		FE	I	3185.033	3184.112	1	711.	378	
CR	II	3182.34	3181.42	20	9.	340		V	II	3185.162	3184.241	5		782	
GE	II	3182.41	3181.49	5		676		AR	II	3185.189	3184.268	10		506	
FE	I	3182.4415	3181.5213	8	258.	896		CR	II	3185.28	3184.36	15	123.	340	
V	I	3182.55	3181.63	1		1000		NI	I	3185.287	3184.367	40	11.	1015	
CL	II	3182.565	3181.644	85		613		FE	I	3185.5426	3184.6216	5	155.	896	
NI	I	3182.659	3181.740	25	78.	1015		CU	II	3185.5433	3184.6224	4		612	
TI	II	3182.76	3181.84	8	122.	1015		P	III	3185.735	3184.814	150		936	
FE	I	3182.7666	3181.8463	5	333.	896		MN	II	3185.739	3184.818	40		328	
FE	I	3182.8329	3181.9126	5	155.	896	M	TI	III	3185.760	3184.839	130		227	
FE	I	3182.894	3181.974	6		896		CU	II	3185.7614	3184.8404	90		612	
MN	I	3182.907	3181.990	1		148		FE	I	3185.8157	3184.8947	125	7.	896	
FE	I	3182.9762	3182.0558	6	159.	896		V	III	3185.983	3185.062	8		325	
CO	I	3183.036	3182.118	7	73.	603		MN	I	3186.014	3185.096	10		148	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	II	3186.015	3185.095	1	67.	1015		CO	I	3188.25	3187.34	4		603	
SI	III	3186.046	3185.125	410	8.	768		BE	I	3189.26	3187.34	15		333	
S	III	3186.08	3185.16	150	13.	323		CL	II	3188.344	3187.423	27		613	
F	III	3186.081	3185.160	12		537		NE	II	3188.4979	3187.5762	90		389	
HE	I	3186.215	3185.293	M		497		CO	I	3188.52	3187.60	3		603	
FE	II	3186.235	3185.315	5	7.	1015		V	II	3188.635	3187.717	200	8.	478	
V	I	3186.320	3185.404	40	14.	1000		HE	I	3188.667	3187.745	200	3.	497	
SE	III	3186.43	3185.51	250		14		AR	III	3188.80	3187.90	60		79	
CU	II	3186.6462	3185.7249	50		612		CR	I	3188.93	3188.02	15	92.	341	
ZN	III	3186.68	3185.76	5		162		FE	I	3188.947	3188.026	2		378	
AR	II	3186.685	3185.734	30		506		V	I	3189.015	3188.096	3		1000	
ZN	II	3186.692	3185.771	5		154		V	II	3189.02	3188.10	30	49.	478	
O	IV	3186.7L	3185.86	120	7.	86		O	IV	3189.17	3188.25	90.	7.	86	
CO	I	3186.866	3185.948	2		603		SC	I	3189.21	3188.29	1		1030	
FE	III	3186.87	3185.95	5		288		AR	II	3189.291	3188.369	10	48.	506	M
SI	II	3186.92	3185.99	10	11.	678		CO	I	3189.296	3188.377	7	74.	603	
CU	II	3186.9361	3186.0148	50		612		V	II	3189.441	3188.522	260	8.	478	
SI	III	3186.943	3186.022	270	8.0	768		FE	I	3189.4901	3188.5681	10	159.	896	
V	II	3187.02	3186.10	1	64.	478		O	IV	3189.58	3188.66	90	7.	86	
AR	II	3187.090	3186.169	50	48.	506		CU	II	3189.645	3188.723	4		612	
P	III	3187.107	3186.186	250		936		NE	II	3189.6635	3188.7414	100	13.	389	
CU	II	3187.2625	3186.3411	25		612		FE	I	3189.742	3188.820	15	159.	896	
CO	I	3187.268	3186.350	5	8.	603		MN	II	3189.84	3188.92	0		328	
TI	I	3187.369	3186.451	60	27.	1025		SI	II	3189.89	3188.97	150	13.	678	
TI	I	3187.372	3186.451	600	27.	1015		ZN	II	3189.89	3188.97	15		154	
MN	I	3187.426	3186.507	1		148		CL	II	3189.928	3189.006	140	65.	613	
AR	I	3187.563	3186.642	25		517		V	I	3189.997	3189.078	1		1000	
GE	II	3187.637	3186.715	50		676		MN	II	3190.156	3189.233	40		328	
MN	II	3187.645	3186.724	15		328		TI	II	3190.44	3189.52	5	120.	1015	
P	V	3187.652	3186.731	30		524		NI	II	3190.552	3189.630	30		835	
FE	II	3187.662	3186.741	4	6.	896		LI	III	3190.656	3189.733			309	
CR	II	3187.67	3186.75	18	69.	340		FE	III	3190.667	3189.745	40	55.	288	
FE	I	3187.736	3186.814	1	100.	378		CO	I	3190.671	3189.752	5	9.	603	
V	II	3187.78	3186.86	10	63.	478		V	II	3190.68	3189.76	3	83.	478	
CU	II	3187.9643	3187.0427	10		612		NA	II	3190.702	3189.780	90	4.	693	
MN	II	3187.976	3187.054	100		328		CR	II	3190.77	3189.85	12	123.	340	
FE	I	3188.092	3187.171	1	333.	378		AS	IV	3190.86	3189.94	350		584	
MN	I	3188.132	3187.213	2		148		MN	I	3190.879	3189.959	15		148	
P	III	3188.141	3187.219	25		936		FE	I	3190.9385	3190.0162	1	259.	896	
FE	II	3188.215	3187.294	8	120.	1015		N	II	3191.116	3190.194		22.0	521	P



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
SC	II	3191.325	3190.403	2	42.	1015		FE	I	3193.486	3192.563	5		896	M
FE	III	3191.436	3190.514	5		288		NI	II	3193.505	3192.582	4		835	
MN	II	3191.45	3190.53	5		328		MN	II	3193.57	3192.64	5		328	
CL	III	3191.50	3190.58	400		43		TI	II	3193.60	3192.68	4	120.	1015	
TI	III	3191.502	3190.580	15		227		V	II	3193.619	3192.699	15	83.	478	
FE	I	3191.5721	3190.6496	3	548.	896		FE	I	3193.7239	3192.8009	6	155.	896	
CR	II	3191.60	3190.68	6	174.	340		FE	I	3193.7656	3192.8426	6	452.	896	
V	II	3191.606	3190.686	360	8.	478		V	III	3193.82	3192.90	40		325	
TI	I	3191.720	3190.801	20	26.	1025		FE	II	3193.840	3192.917	9	6.	1015	
FE	III	3191.73	3190.81	8		1015	N	BR	II	3193.963	3193.040	10		606	
FE	I	3191.7385	3190.8159	5	548.	896		SI	II	3194.01	3193.09	150	13.	678	
NE	II	3191.786	3190.864	90	14.	1016		CO	I	3194.084	3193.164	5	26.	603	
TI	II	3191.796	3190.874	30	26.	1015		V	II	3194.120	3193.200	20	83.	478	
CO	I	3191.830	3190.910	1		603		FE	I	3194.1490	3193.2258	220	7.	896	
NE	II	3191.842	3190.920	70		563		FE	I	3194.2224	3193.2992	280	159.	896	
SC	II	3191.927	3191.005	5	42.	1015		CR	II	3194.33	3193.41	2	52.	340	
CU	II	3192.019	3191.100	0		670		AR	II	3194.435	3193.512	10		506	
FE	I	3192.0357	3191.1131	1	258.	896		MN	II	3194.501	3193.578	10		328	
FE	I	3192.100	3191.180	M	452.	605		NI	II	3194.600	3193.677	2		835	
CO	I	3192.216	3191.297	4	7.	603		FE	I	3194.649	3193.726	0	682.	378	
FE	II	3192.296	3191.374	1	79.	1015		NI	I	3194.67	3193.75	K	92.	1015	
CL	III	3192.37	3191.45	900	3.	38		TI	III	3194.694	3193.771	40		227	
BR	II	3192.538	3191.616	50		606		MN	I	3194.709	3193.788	1		148	
FE	I	3192.5819	3191.6591	155	8.	896		CL	II	3194.718	3193.795	10		613	
NI	I	3192.797	3191.875	10	125.	1015		FE	II	3194.732	3193.809	11	6	1015	
AR	II	3192.87	3191.95	5		506		BE	I	3194.753	3193.830	15		330	
TI	I	3192.914	3191.994	80	27.	1025		CL	III	3194.76	3193.84	0		43	
TI	I	3192.916	3191.994	800	27.	1015		CO	II	3194.77	3193.84	1		825	
FE	II	3192.981	3192.059	3	66.	1015		FE	II	3194.817	3193.893	4	67.	896	
CR	I	3193.039	3192.118	15	13.	341		V	I	3194.839	3193.919	6		1000	
CU	I	3193.14	3192.22	2		672		V	II	3194.89	3193.97	10	49.	478	
CO	I	3193.140	3192.220	3	72.	603		CU	I	3195.019	3194.099	390	14.	672	
SI	II	3193.17	3192.25	50	13.	678		NI	II	3195.107	3194.183	10		835	
TI	II	3193.18	3192.26	2	25.	1015		SI	II	3195.13	3194.21	50	13.	678	
CR	I	3193.207	3192.287	5		341		AR	II	3195.1541	3194.2307	80	46.	867	
CU	II	3193.225	3192.302	2		612		TI	II	3195.18	3194.26	5	120.	1015	
AR	II	3193.286	3192.363	30		506		MN	II	3195.263	3194.339	20		328	
FE	I	3193.3356	3192.4127	5	100.	896		V	I	3195.32	3194.40	2		1000	
MN	I	3193.347	3192.426	10		148		FE	I	3195.3478	3194.4244	6	155.	896	
FE	I	3193.430	3192.507	6		896		TI	II	3195.48	3194.56	8	120.	1015	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	I	3195.49	3194.57	1		1000		HE	I	3197.666	3196.742	2		497	
NE	II	3195.5007	3194.5773	100	16.	389		CR	I	3197.75	3196.83	3		341	
P	III	3195.505	3194.581	10		936		CR	II	3197.85	3196.93	20	9.	340	
AR	II	3195.521	3194.598	40		506		FE	I	3197.8522	3196.9281	140	155.	896	
CR	II	3195.54	3194.62	10	70.	340		CO	I	3197.86	3196.93	2		603	
MN	I	3195.583	3194.663	1		148		FE	I	3197.9110	3196.9869	50	8.	896	
SI	II	3195.61	3194.69	50	12.	678		MN	II	3197.929	3197.006	80		328	
NI	I	3195.68	3194.76	K	108.	1015		CR	II	3198.01	3197.08	75	9.	340	
TI	II	3195.68	3194.76	6		1015		ZN	II	3198.024	3197.100	100		154	
O	IV	3195.72	3194.79	200	7.	86		BE	II	3198.027	3197.103	15		332	
MN	I	3195.775	3194.855	1		148		NI	I	3198.037	3197.113	50	24.	1015	
V	I	3195.84	3194.92	1		1000		BE	II	3198.073	3197.149	25		332	
NI	II	3196.100	3195.177	8.		835		MN	II	3198.08	3197.15	0		328	
NI	II	3196.218	3195.294	5		835		TI	II	3198.442	3197.518	2	3.	1015	
SI	II	3196.33	3195.41	100	13.	678		FE	I	3198.444	3197.520	5	711.	896	
V	II	3196.42	3195.50	15		782		MN	II	3198.489	3197.565	40		328	
NI	I	3196.496	3195.573	30	12.	1015		GE	III	3198.49	3197.56	25		406	
AR	II	3196.498	3195.574	20		506		V	II	3198.495	3197.574	7	150.	478	
TI	II	3196.640	3195.717	3	25.	1015		MG	I	3198.550	3197.625	3		1017	
AR	II	3196.676	3195.752	50		506		CR	II	3198.92	3198.00	15		340	
FE	I	3196.892	3195.968	1	192.	378		V	I	3198.932	3198.012	20	14.	1000	
MN	I	3196.908	3195.988	2		148		CU	II	3199.0295	3198.1052	8		612	
TI	II	3196.918	3195.994	M	46.	1015		CR	I	3199.039	3198.116	20	91.	341	
AS	II	3196.9527	3196.0289	50		425		MN	II	3199.069	3198.145	20		328	
FE	II	3196.999	3196.076	12	7.	896		MN	II	3199.185	3198.261	2		328	
FE	I	3197.0461	3196.1223	5	333.	896		FE	I	3199.187	3198.266	1	258.	605	
MN	II	3197.168	3196.244	40		328		CR	III	3199.23	3198.31			893	F P
AS	II	3197.173	3196.249	5		425		V	III	3199.232	3198.306	50		325	
LI	II	3197.187	3196.264	20		307		NE	II	3199.5106	3198.5861	150		389	
ZN	II	3197.235	3196.311	300		154		CO	I	3199.581	3198.660	5	26.	603	
LI	II	3197.254	3196.330	180		307		TI	I	3199.650	3198.726	10	191.	1015	
CR	II	3197.27	3196.35	3	9.	340		CR	II	3199.66	3198.74	2		340	
LI	II	3197.279	3196.356	80		307		FE	III	3199.746	3198.922	110	6.	288	
CR	II	3197.31	3196.39	5	115.	340		MN	II	3199.837	3198.913	80		328	
N	II	3197.315	3196.391		22.0	521	P	NE	II	3199.8403	3198.9157	60	13.	389	
CO	I	3197.344	3196.423	1		603		AR	II	3199.844	3198.920	20		506	
SI	III	3197.428	3196.504	315	8.0	768		CO	I	3200.244	3199.322	4	9.	603	
V	II	3197.495	3196.574	20	62.	478		LI	II	3200.257	3199.332	100		307	
CR	I	3197.59	3196.67	1		341		NI	I	3200.266	3199.342	15		1015	N
CO	I	3197.66	3196.74	1		603		TI	I	3200.270	3199.346	10	191.	1015	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SC	II	3200.295	3199.370	10	42.	1015		FE	III	3202.818	3201.893	20	6.	288	
TI	I	3200.35	3199.43	10	191.	1015		K	III	3202.88	3201.95	150	5.	1015	
LI	II	3200.359	3199.434	40		307		CL	II	3203.035	3202.110	93		613	
FE	I	3200.4243	3199.4996	80	7.	896		NI	I	3203.067	3202.142	25	94.	1015	
MN	II	3200.448	3199.522	20		328		MN	I	3203.127	3202.205	4		148	
FE	I	3200.4556	3199.5309	80	156.	896		NI	II	3203.237	3202.312	10		835	
SI	II	3200.461	3199.514	200	13.	678		V	I	3203.305	3202.383	25	14.	1000	
O	IV	3200.47	3199.55	120	7.	86		P	III	3203.379	3202.453	60		936	
BR	II	3200.708	3199.783	150		606		CR	II	3203.39	3202.47	7	46.	340	
V	I	3200.741	3199.819	6		1000		SI	II	3203.42	3202.49	20	13.	678	
CL	II	3200.753	3199.828	13		613		CR	II	3203.43	3202.51	15	173.	340	
CR	II	3200.78	3199.86	10	101.	340		TI	II	3203.460	3202.535	40	26.	1015	
P	IV	3200.763	3199.858	25		937		FE	I	3203.4830	3202.5575	6	547.	896	
TI	I	3200.837	3199.915	100	27.	1025		SC	I	3203.49	3202.56	00		1028	
TI	I	3200.840	3199.915	1000	27.	1015		MN	II	3203.543	3202.617	30		328	
FE	I	3200.845	3199.920	1	156.	378		V	II	3203.634	3202.711	2	62.	478	
P	III	3201.059	3200.134	10		936		F	II	3203.684	3202.759	700	8.	538	
P	IV	3201.141	3200.216	40		937		BE	IV	3203.755	3202.829			309	
FE	I	3201.242	3200.317	4		896	M	FE	I	3203.787	3202.862	3		896	M
P	IV	3201.257	3200.332	90		937		CO	I	3203.948	3203.026	4	9.	603	
AR	I	3201.291	3200.366	150		517		CL	II	3203.950	3203.024	190		613	
NI	I	3201.348	3200.423	25	23.	1015		HE	II	3204.027	3203.102		1.	309	
CR	II	3201.36	3200.44	10	114.	340		MN	I	3204.053	3203.131	4		148	
FE	I	3201.396	3200.471	60	155.	896		F	II	3204.16	3203.24	1		538	
N	II	3201.610	3200.685	20	61.0	200		AR	II	3204.3190	3203.3933	30		867	
FE	I	3201.7097	3200.7847	12	8.	896		AL	I	3204.32	3203.39	25	20.	1015	
TI	III	3201.814	3200.888	15		227		P	III	3204.332	3203.407	40		936	
SE	II	3201.85	3200.93	50		468		TI	II	3204.361	3203.435	3	3.	1015	
MN	I	3202.035	3201.113	10		148		FE	II	3204.435	3203.509	1	79.	1015	
O	III	3202.04	3201.11	4	31.	1015	P	CR	II	3204.45	3203.53	15	46.	340	
F	II	3202.068	3201.143	25		538		TI	I	3204.51	3203.58	20	26.	1015	
V	I	3202.149	3201.227	2		1000		CL	IV	3204.53	3203.60			108	F
CR	II	3202.18	3201.26	25	114.	340		F	II	3204.57	3203.65	1		538	
V	II	3202.50	3201.58	15		782		AR	I	3204.584	3203.658	40		517	
TI	I	3202.519	3201.594	50	90.	1015		FE	II	3204.667	3203.741	0	196.	1015	
FE	III	3202.562	3201.637	20		288		TI	I	3204.754	3203.828	150	27.	1015	
P	III	3202.568	3201.643	25		936		SI	II	3204.798	3203.872	100	7.	678	
MN	II	3202.584	3201.658	100		328		CU	II	3204.862	3203.939	0		670	
MG	I	3202.721	3201.796	5		1017		P	V	3204.96	3204.04	15		597	
FE	I	3202.813	3201.891	M	159.	605		P	V	3204.963	3204.037	520		524	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	3205.05	3204.12	10		328		V	I	3207.847	3206.923	1		1000	
V	I	3205.116	3204.193	3	13.	1000		MG	III	3207.87	3206.95	7		2	
FE	I	3205.232	3204.306	1		378		NI	I	3207.876	3206.952	20	94.	1015	
AR	II	3205.2470	3204.3210	120	71.	867		FE	III	3207.878	3206.951	40	6.	288	
CU	II	3205.4491	3204.5231	5		612		SC	I	3207.93	3207.01	0		1028	
SE	II	3205.50	3204.58	250	18.	468		FE	I	3208.0016	3207.0749	5	159.	896	
MN	II	3205.676	3204.749	15		328		O	III	3208.04	3207.12	4	31.	1015	
FE	III	3205.689	3204.763	160	6.	288		CR	I	3208.09	3207.17	1		341	
CO	I	3205.69	3204.77	1		603		TI	I	3208.261	3207.337	50	90.	1015	
TI	I	3205.796	3204.870	60	90.	1015		V	I	3208.338	3207.415	20	14.	1000	
MN	II	3205.800	3204.874	140		328		CR	I	3208.43	3207.51	1		341	
AR	II	3205.922	3204.996	80	133.	506		AR	II	3208.504	3207.577	40	132.	506	
CR	II	3206.03	3205.11	25	114.	340		FE	I	3208.572	3207.649	1	382.	605	
TI	I	3206.091	3205.168	20	26.	1015		AR	II	3208.582	3207.655	20		506	
V	III	3206.10	3205.18	10		325		V	III	3208.74	3207.81	5		325	
V	I	3206.180	3205.257	5		1000		TI	I	3208.821	3207.897	50	179.	1015	
MN	II	3206.186	3205.259	30		328		NE	I	3208.83	3207.91	6		1029	Q
CR	II	3206.27	3205.35	2		340		CR	II	3208.93	3208.01	8	114.	340	
FE	I	3206.3248	3205.3985	50	155.	896		AL	IV	3209.12	3208.20	500		888	
CO	I	3206.33	3205.40	0		603		CU	I	3209.155	3208.231	370	14.	672	
V	I	3206.504	3205.581	15	73.	1000		SI	II	3209.18	3208.25	2	12.	678	
TI	II	3206.56	3205.64	M	46.	1015		CU	II	3209.2295	3208.3026	12		612	
ZN	III	3206.6	3205.7	30		162		BR	II	3209.255	3208.331	120	9.	488	
CR	III	3206.64	3205.72			893	F P	V	II	3209.269	3208.345	100	8.	478	
SI	II	3206.70	3205.77	1	13.	678		MN	II	3209.36	3208.42	2		328	
FE	I	3206.709	3205.782	1	252.	378		P	II	3209.388	3208.442	6		496	
CR	I	3206.73	3205.81	1		341		FE	I	3209.397	3208.470	8	711.	896	
TI	I	3206.771	3205.848	50	26.	1015		CR	II	3209.52	3208.60	20	9.	340	
CO	I	3206.807	3205.883	1		603		BE	I	3209.527	3208.600	40		330	
TI	II	3206.913	3205.990	1	26.	1015		TI	II	3209.531	3208.607	1	120.	1015	
V	II	3207.08	3206.16	15		782		MN	II	3209.601	3208.674	10		328	
NE	I	3207.12	3206.20	1		1029	Q	MN	II	3209.769	3208.842	10		328	
FE	III	3207.22	3206.29	5		288		CO	I	3209.77	3208.85	1		603	
TI	I	3207.267	3206.344	50	179.	1015		NI	II	3209.83	3208.91	1	2.	1015	
MN	II	3207.395	3206.467	100		328		NE	II	3209.8929	3208.9655	100	13.	389	
CU	II	3207.6113	3206.6848	40		612		TI	I	3209.954	3209.030	40	179.	1015	
N	II	3207.636	3206.709	20	61.0	200		FE	I	3210.039	3209.115	3	97.	1015	
F	II	3207.69	3206.76	1		538		F	III	3210.065	3209.138	30		537	
TI	I	3207.749	3206.825	50	179.	1015		CR	II	3210.11	3209.19	50	9.	340	
MN	I	3207.833	3206.910	80	14.	148		FE	I	3210.225	3209.298	40	333.	896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
K	III	3210.26	3209.34	150	5.	1015		GE	III	3212.79	3211.86	35		406	
P	III	3210.275	3209.348	4		936		FE	I	3212.804	3211.876	100	98.	896	
NE	II	3210.2832	3209.3560	120	16.	389		FE	I	3212.9138	3211.9859	6	158.	896	
F	II	3210.36	3209.43	1		538		NE	II	3212.916	3211.989	10	.	1016	
CU	II	3210.379	3209.452	1		612		CO	II	3212.94	3212.02	1		825	
CU	I	3210.422	3209.498	4		672		FE	I	3213.089	3212.161	4		896	M
FE	II	3210.527	3209.603	1	137.	1015		FE	III	3213.109	3212.181	20	.	288	
O	IV	3210.59	3209.66	250	7.	86		NA	II	3213.111	3212.185	90	4.	693	
CO	I	3210.73	3209.80	1	70.	603		V	I	3213.361	3212.437	15	73.	1000	
NI	I	3210.836	3209.912	25	94.	1015		AR	II	3213.4466	3212.5186	60	47.	867	
MN	II	3210.875	3209.948	20		328		CR	II	3213.45	3212.52	20	81.	340	
CA	I	3210.882	3209.955	20	13.	1018		TI	II	3213.63	3212.70	M	9.	1015	
SI	II	3210.953	3210.025	200.	7.	678		MN	I	3213.812	3212.887	140	14.	148	
V	I	3211.020	3210.096	4		1000		CR	II	3213.83	3212.90	18	114.	340	
CO	I	3211.143	3210.219	5	106.	603		MN	II	3214.018	3213.090	20		328	
FE	I	3211.1568	3210.2293	30	159.	896		P	III	3214.039	3213.111	10		936	
V	I	3211.351	3210.427	2		1000		TI	I	3214.070	3213.145	80	90.	1015	
FE	II	3211.374	3210.449	10	6.	1015		TI	I	3214.070	3213.145	80	191.	1015	
SI	III	3211.482	3210.554	360	8.0	768		TI	II	3214.070	3213.145	1	3.	1015	
CR	I	3211.557	3210.633	7	13.	341		NI	II	3214.100	3213.172	3		835	
MN	II	3211.73	3210.81	1		328		FE	II	3214.239	3213.310	6	6.	896	
FE	I	3211.7556	3210.8280	40	156.	896		CO	II	3214.29	3213.36	1		825	
CO	I	3211.78	3210.85	3		603		NI	I	3214.348	3213.423	25	91.	1015	
CO	I	3211.94	3211.01	4	154.	603		CR	II	3214.39	3213.46	3	153.	340	
TI	I	3211.99	3211.07	10	191.	1015		MN	II	3214.46	3213.54	15		328	
NI	II	3211.990	3211.062	5		835		TI	II	3214.52	3213.59	M	120.	1015	
FE	II	3211.997	3211.072	1	95.	1015		NE	II	3214.6620	3213.7336	120	13.	389	
MN	II	3212.121	3211.191	40		328		FE	I	3214.664	3213.735	40	452.	896	
MN	I	3212.195	3211.270	4		148		NI	II	3214.699	3213.771	8		835	
CR	I	3212.240	3211.316	20	220.	341		SC	I	3214.71	3213.78	0		1028	
V	I	3212.248	3211.323	0		1000		MG	III	3214.77	3213.85	15		2	
P	III	3212.253	3211.325	1		936		V	I	3214.863	3213.939	2		1000	
CU	I	3212.36	3211.43	30		672		F	III	3214.932	3214.003	450	2.	537	
CR	II	3212.41	3211.49	12		340		FE	I	3214.9395	3214.0111	140	156.	896	
FE	I	3212.4129	3211.4851	12	162.	896		NI	I	3214.985	3214.059	35	93.	1015	
V	I	3212.493	3211.569	1		1000		AL	IV	3215.06	3214.13	10		888	
HE	I	3212.496	3211.568	2		497		TI	II	3215.07	3214.14	1	84.	1015	
FE	I	3212.536	3211.608	5		896	M	TI	I	3215.166	3214.240	120	27.	1015	
FE	I	3212.603	3211.675	50	711.	896		GE	II	3215.21	3214.28	2		676	
MN	II	3212.663	3211.735	80		328		NE	II	3215.2563	3214.3278	150	13.	389	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	3215.3241	3214.3956	140	7.	896		TI	II	3217.983	3217.056	30	2.	1015	
NI	II	3215.427	3214.498	10		835		V	I	3218.040	3217.113	10	14.	1000	
F	II	3215.439	3214.510	10		538		V	II	3218.047	3217.121	310	38.	478	
FE	I	3215.550	3214.624	1	143.	605		K	I	3218.084	3217.155	120	1.	1019	
SI	II	3215.59	3214.66	75	16.	678		CU	II	3218.242	3217.312	5		612	
TI	II	3215.676	3214.750	4	3.	1015		FE	I	3218.3063	3217.3770	50	157.	896	
V	II	3215.676	3214.750	120	8.	478		CR	II	3218.33	3217.40	50	9.	340	
NE	II	3215.679	3214.751	80		563		MN	II	3218.47	3217.54	3		328	
NE	II	3215.850	3214.921	80	29.	1016		K	I	3218.550	3217.621	90	1.	1019	
GE	III	3215.88	3214.95	25		406		CU	I	3218.57	3217.64	10		672	
F	II	3215.929	3215.000	25		538		CU	II	3218.570	3217.641	3		612	
CA	I	3216.098	3215.169	25	13.	1018		AR	II	3218.598	3217.669	50	133.	506	
SE	III	3216.21	3215.28	250		14		NI	I	3218.757	3217.830	40	91.	1015	
NI	II	3216.227	3215.299	4		835		TI	I	3218.869	3217.942	80	179.	1015	
CO	I	3216.257	3215.332	1		603		SI	II	3218.92	3217.99	15	16.	678	
CA	I	3216.267	3215.338	15	13.	1018		O	II	3218.97	3218.04	10	107.	1015	P
V	I	3216.304	3215.379	4	13.	1000		P	III	3219.091	3218.162	10		936	
FE	I	3216.340	3215.411	5		896	M	CR	I	3219.10	3218.17	2		341	
FE	III	3216.562	3215.633	285	6.	288		NE	II	3219.1221	3218.1926	150	13.	389	
FE	I	3216.562	3215.637	3	332.	605		CU	I	3219.130	3218.204	5		672	
SC	I	3216.61	3215.68	2		1030	M	TI	II	3219.19	3218.26	M	46.	1015	
AR	II	3216.617	3215.688	30		506		CU	II	3219.1959	3218.2664	2		612	
FE	I	3216.8669	3215.9380	60	156.	896		TI	II	3219.197	3218.270	25	84.	1015	
O	II	3217.01	3216.08	1	107.	1015		FE	III	3219.270	3218.340	160	87.	288	
O	III	3217.05	3216.12	4	31.	1015	P	V	I	3219.281	3218.355	1		1000	
AS	IV	3217.07	3216.14	150		584		TI	II	3219.37	3218.44	M	46.	1015	
TI	I	3217.129	3216.203	30	90.	1015		CU	II	3219.5574	3218.6278	3		612	
SI	III	3217.178	3216.249	80	8.1	768		TI	I	3219.610	3218.683	J	90.	1015	
NA	II	3217.210	3216.284	10		693		CR	I	3219.63	3218.70	7		341	
O	IV	3217.23	3216.30	F	7.	86	H	CU	II	3219.6938	3218.7642	10		612	
CR	I	3217.30	3216.37	2		341		V	I	3219.800	3218.874	5	72.	1000	
GE	II	3217.40	3216.47	2		676		CO	II	3219.89	3218.96	3		825	
CR	II	3217.48	3216.55	20	82.	340		CR	II	3220.06	3219.13	18	140.	340	
AR	II	3217.6593	3216.7302	80		867		CO	I	3220.076	3219.150	5	8.	603	
O	II	3217.69	3216.76	4	107.	1015		FE	I	3220.116	3219.187	1	141.	378	
NI	I	3217.747	3216.821	25	93.	1015		TI	I	3220.139	3219.212	80	179.	1015	
TI	II	3217.81	3216.88	M	36.	1015		P	III	3220.236	3219.307	300	4.	936	
MN	I	3217.874	3216.947	100	3.	148		FE	I	3220.5120	3219.5827	80	156.	896	
CU	II	3217.9187	3216.9896	4		612		CR	I	3220.55	3219.62	20	220.	341	
CO	I	3217.923	3216.996	1		603		FE	I	3220.6962	3219.7664	60	8.	896	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	II	3220.72	3219.79	10	63.	340		FE	I	3224.010	3223.080	0	682.	378	
FE	I	3220.7343	3219.8044	60	158.	896		CO	I	3224.075	3223.147	1		603	
NI	I	3220.738	3219.811	15	94.	1015		FE	I	3224.203	3223.272	4	51.	896	
SC	I	3220.88	3219.95	0		1028		ZN	III	3224.34	3223.41	3		162	
CR	I	3220.90	3219.97	2		341		CU	I	3224.363	3223.435	4		672	
BE	I	3221.32	3220.39	25		333		FE	I	3224.411	3223.480	1		378	
SI	II	3221.37	3220.44	10	15.	678		TI	I	3224.447	3223.519	100	179.	1015	
TI	II	3221.395	3220.467	1	9.	1015		NI	I	3224.462	3223.534	15	94.	1015	
P	III	3221.486	3220.555	10		936		NI	I	3224.462	3223.534	15	92.	1015	
CO	I	3221.55	3220.62	4	152.	603		GE	II	3224.605	3223.674	5		676	
CU	I	3221.58	3220.65	8		672		FE	I	3224.7714	3223.8405	3	27.	896	
SC	I	3221.70	3220.77	3		1030	M	SI	II	3225.06	3224.13	1	16.	678	
CR	III	3221.73	3220.81	1		490		P	IV	3225.05	3224.160	25		937	
FE	II	3221.763	3220.835	0	106.	1015		TI	II	3225.170	3224.241	35	84.	1015	
TI	I	3222.079	3221.151	20	26.	1015		B	II	3225.18	3224.25	A		532	
NI	I	3222.201	3221.273	25	185.	1015		CR	III	3225.22	3224.30	1		490	
CU	I	3222.28	3221.35	8		672		CU	I	3225.592	3224.664	4		672	
V	II	3222.308	3221.380	2	109.	478		MN	I	3225.687	3224.758	125		148	
TI	I	3222.309	3221.381	100	179.	1015		NE	II	3225.747	3224.816	120	43.	1016	
CR	II	3222.32	3221.39	1		340		SC	IV	3225.779	3224.850	1		720	
P	III	3222.350	3221.420	40		936		P	IV	3225.886	3224.954	90		937	
AR	II	3222.5556	3221.6253	40	46.	867		NI	I	3225.949	3225.020	50	39.	1015	
GE	II	3222.570	3221.640	100		676		CU	I	3226.015	3225.088	2		672	
NI	I	3222.580	3221.652	50	8.	1015		F	III	3226.175	3225.244	4		537	
TI	II	3222.69	3221.76	M	46.	1015		B	II	3226.20	3225.27	A		532	
FE	I	3222.8457	3221.9153	6	156.	896		AS	II	3226.2480	3225.3167	5		425	
CU	II	3222.901	3221.970	2		612		CU	II	3226.2701	3225.3388	30		612	
FE	I	3222.9757	3222.0452	170	451.	896		CR	II	3226.31	3225.38	12	140.	340	
FE	I	3222.9971	3222.0666	170	156.	896		CR	II	3226.37	3225.44	8	45.	340	
B	II	3223.01	3222.08	A		532		V	I	3226.418	3225.490	1		1000	
CR	I	3223.26	3222.33	2		341		AR	I	3226.484	3225.553	60		517	
NI	II	3223.266	3222.336	10		835		FE	I	3226.5385	3225.6071	6	192.	896	
AR	II	3223.324	3222.393	60	133.	506		MN	II	3226.559	3225.628	30		328	
CL	II	3223.472	3222.541	25		613		V	I	3226.56	3225.63	1		1000	
TI	I	3223.669	3222.741	30	26.	1015		CU	I	3226.627	3225.698	5		672	
TI	II	3223.771	3222.843	35	2.	1015		MN	II	3226.659	3225.727	5		328	
FE	II	3223.855	3222.924	8		896		FE	I	3226.716	3225.785	240	155.	896	
SI	II	3223.94	3223.01	20	16.	678		CA	I	3226.834	3225.902	33	13.	1018	
GR	III	3223.97	3223.04	1		490		NA	II	3226.905	3225.976	40		693	
NI	II	3224.0	3223.1			909	F	AR	II	3226.9060	3225.9746	30	46.	867	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	I	3226.943	3226.012	2		378		TI	III	3229.819	3228.887	40		227	
MN	I	3226.976	3226.048	100	14.	148		FE	I	3229.833	3228.901	6	157.	896	
V	I	3227.035	3226.106	4	14.	1000		F	II	3229.909	3228.978	4		538	
TI	I	3227.057	3226.128	120	179.	1015		FE	I	3230.0530	3229.1207	40	8.	896	
CA	I	3227.081	3226.149	15	13.	1018		CR	III	3230.11	3229.18	5		490	
TI	I	3227.169	3226.240	10	27.	1015		TI	II	3230.123	3229.193	40	2.	1015	
CA	I	3227.249	3226.318	3	13.	1018		CR	I	3230.135	3229.206	25	220.	341	
CU	II	3227.2605	3226.3290	2		612		F	II	3230.222	3229.290	10		538	
CR	II	3227.28	3226.35	4	114.	340		CR	II	3230.31	3229.38	8	46.	340	
FE	II	3227.307	3226.378	2	178.	1015		TI	II	3230.327	3229.397	35	36.	1015	
CU	II	3227.3710	3226.4394	5		612		NE	II	3230.390	3229.458	90	43.	1016	
CU	I	3227.469	3226.541	50		672		CU	II	3230.4849	3229.5526	12		612	
CR	I	3227.484	3226.555	15		341		NE	II	3230.505	3229.573	120	43.	1016	
CU	II	3227.5128	3226.5812	40		612		FE	I	3230.527	3229.595	2	333.	378	
CU	I	3227.531	3226.602	125		672		V	I	3230.533	3229.604	4	134.	1000	
FE	I	3227.6449	3226.7133	6	8.	896		BE	I	3230.552	3229.620	160		333	
TI	II	3227.700	3226.771	2	3.	1015		NI	II	3230.567	3229.634	40		835	
V	II	3227.852	3226.924	40	185.	478		AR	II	3230.696	3229.764	10		506	
NI	I	3227.913	3226.984	25	7.	1015		FE	I	3230.729	3229.797	10	247.	896	
MN	I	3227.968	3227.039	2		148		CR	II	3230.81	3229.88	10	114.	340	
FE	I	3227.991	3227.063	3	156.	605		P	IV	3230.842	3229.910	25		937	
V	I	3228.045	3227.117	3		1000		V	IV	3230.85	3229.92	0		829	
CR	I	3228.161	3227.232	7	162.	341		FE	I	3230.927	3229.994	0	546.	896	
V	I	3228.336	3227.408	4	134.	1000		AR	II	3230.954	3230.021	40		506	
CR	II	3228.41	3227.48	3	153.	340		TI	III	3230.979	3230.047	25		227	
V	IV	3228.439	3227.507	15		829		NE	II	3231.0011	3230.0686	200	11.	389	
MN	II	3228.55	3227.61	3		328		FE	I	3231.018	3230.085	1	27.	378	
FE	II	3228.662	3227.732	13	6.	1015		FE	III	3231.09	3230.16	20		288	
FE	I	3228.7278	3227.7959	80	157.	896		FE	I	3231.1401	3230.2076	20	158.	896	
TI	III	3228.877	3227.945	25		227		MN	I	3231.160	3230.231	10		148	
FE	I	3228.9276	3227.9956	5	379.	896		NI	II	3231.169	3230.237	2		835	
MN	I	3229.024	3228.092	320	14.	148		NE	II	3231.3519	3230.4193	120	11.	389	
F	II	3229.057	3228.125	10		538		FE	II	3231.352	3230.420	20		896	
SE	II	3229.10	3228.17	50		468		V	I	3231.371	3230.441	1		1000	
V	I	3229.111	3228.182	3		1000		F	II	3231.389	3230.457	40		538	
TI	I	3229.113	3228.183	20	179.	1015		FE	II	3231.426	3230.496	1	95.	1015	
FE	I	3229.1810	3228.2490	20	157.	896		SI	III	3231.432	3230.499	230	6.	768	
TI	II	3229.29	3228.36	46.	1015			V	I	3231.574	3230.645	6	13.	1000	
TI	II	3229.535	3228.605	30	24.	1015		AR	II	3231.613	3230.680	20		506	
F	II	3229.769	3228.837	25		538		MN	I	3231.646	3230.716	220	14.	148	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CL	III	3231.71	3230.78	100		43		CR	I	3234.17	3233.24	18	25.	341	
CR	II	3231.76	3230.83	2	122.	340		S	III	3234.17	3233.24	150	3.	323	
V	II	3231.849	3230.919	4	48.	478		FE	I	3234.234	3233.304	1	142.	605	
FE	I	3231.8958	3230.9631	40	157.	896		CU	II	3234.3087	3233.3754	8		612	
NI	I	3232.02	3231.09	K	106.	1015		CR	III	3234.32	3233.39	40		490	
MN	II	3232.03	3231.10	1		328		V	I	3234.427	3233.497	1		1000	
S	III	3232.03	3231.10	150	3.	323		P	III	3234.470	3233.536	150	4.	936	
CU	I	3232.108	3231.178	250		672		V	II	3234.476	3233.546	40	61.	478	
HE	I	3232.199	3231.266	3		497		P	III	3234.536	3233.602	400	4.	936	
TI	II	3232.246	3231.315	4	9.	1015		V	II	3234.702	3233.772	80	61.	478	
FE	I	3232.289	3231.356	1		378		NI	I	3234.81	3233.88	10		1015	N
CR	I	3232.31	3231.38	2	220.	341		CU	I	3234.830	3233.899	210		672	
MN	II	3232.363	3231.453	80		328		MN	I	3234.872	3233.939	85		148	
FE	I	3232.506	3231.576	1	50.	605		SI	III	3234.887	3233.954	315	6.	768	
CR	II	3232.56	3231.63	8	122.	340		FE	I	3234.9010	3233.9675	50	158.	896	
FE	II	3232.633	3231.702	5	80.	1015		F	II	3234.91	3233.97	4		538	
TI	II	3232.64	3231.71	M	46.	1015		MN	I	3234.920	3233.997	110		148	
CL	II	3232.648	3231.716	37		613		CR	II	3234.99	3234.06	50	63.	340	
CL	II	3232.70	3231.77	41	73.	613		MN	I	3235.046	3234.112	80		148	
V	II	3232.682	3231.952	80	61.	478		S	III	3235.09	3234.17	200	3.	323	
MN	II	3232.94	3232.01	30		328		V	IV	3235.184	3234.251	20		829	
NE	II	3232.9544	3232.0214	120	11.	389		NI	II	3235.213	3234.279	20		835	
FE	II	3232.956	3232.023	4		896		TI	II	3235.43	3234.50	M.	46.	1015	
CO	III	3233.04	3232.11	20	44.	673		V	II	3235.436	3234.504	10	61.	478	
FE	I	3233.088	3232.155	1	258.	378		TI	II	3235.449	3234.517	75	2.	1015	
TI	II	3233.211	3232.280	30	36.	1015		CR	I	3235.487	3234.556	8		341	
NE	II	3233.3046	3232.3715	150	11.	389		FE	I	3235.5466	3234.6130	110	8.	896	
CR	II	3233.31	3232.38	2	52.	340		NI	I	3235.581	3234.649	50	21.	1015	
CR	III	3233.39	3232.46	100		490		CU	II	3235.6046	3234.6710	4		612	
P	III	3233.656	3232.723	4		936		V	I	3235.66	3234.73	2		1000	
CA	II	3233.667	3232.734	60		64		MN	I	3235.667	3234.737	4		148	
FE	II	3233.722	3232.791	7	119.	1015		CU	II	3235.6672	3234.7335	12		612	
TI	I	3233.722	3232.791	30	179.	1015		MN	I	3235.846	3234.912	10		148	
NI	I	3233.894	3232.963	125	7.	1015		FE	II	3235.855	3234.923	0	1.	1015	
V	III	3233.95	3233.02	50		325		NA	II	3235.856	3234.925	40		693	
FE	I	3233.984	3233.051	80	620.	896		MN	I	3235.959	3235.025	140		148	
NI	I	3234.105	3233.174	20	184.	1015		CR	I	3236.06	3235.13	6		341	
NI	I	3234.105	3233.174	20	91.	1015		AR	II	3236.109	3235.175	30		506	
V	I	3234.114	3233.183	6	72.	1000		CR	II	3236.17	3235.24	4	139.	340	
SC	I	3234.15	3233.22	1		1030	M	TI	III	3236.216	3235.282	25		227	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	I	3236.241	3235.307	170		148		V	III	3239.316	3238.383	60		325	
FE	I	3236.246	3235.312	1	309.	378		SE	II	3239.36	3238.43	100		468	
CR	I	3236.27	3235.34	1		341		CR	I	3239.435	3238.504	10	162.	341	
P	III	3236.313	3235.379	1		936		CR	II	3239.44	3238.51	10	.	340	
FE	III	3236.409	3235.475	5		288		FE	I	3239.467	3238.535	M	397.	605	
FE	I	3236.522	3235.592	1	308.	605		Q	III	3239.50	3238.57	60	9.	1015	
MN	II	3236.603	3235.669	5		328		CU	II	3239.6506	3238.7160	15		612	
CU	I	3236.644	3235.713	250		672		MN	I	3239.652	3238.720	5		148	
NI	I	3236.685	3235.753	20	11.	1015		FE	III	3239.67	3238.74	10	64.	188	
FE	* I	3236.787	3235.833	1		378		CR	II	3239.69	3238.76	50	63.	340	
SI	II	3236.85	3235.92	2	7.10	678		CU	II	3239.7579	3238.8232	50		612	
TI	I	3236.88	3235.95	J	47.	1015		V	I	3239.825	3238.894	1		1000	
TI	I	3237.054	3236.122	20	24.	1015		CR	I	3239.864	3238.953	6		341	
FE	I	3237.1562	3236.2222	170	7.	896		FE	I	3239.9473	3239.0125	5	141.	896	
CR	I	3237.18	3236.25	3		341		FE	III	3239.97	3239.04	10	63.	168	
MN	I	3237.446	3236.515	5		148		TI	II	3239.970	3239.037	60	2.	1015	
TI	II	3237.505	3236.573	70	2.	1015		FE	I	3239.9775	3239.0427	5	172.	896	
F	III	3237.583	3236.649	4		537		CU	I	3240.09	3239.16	125		672	
NI	III	3237.677	3236.743	120		835		CR	I	3240.11	3239.18	4	92.	341	
MN	I	3237.709	3236.778	320	14.	148		FE	I	3240.3676	3239.4328	100	157.	896	
AR	II	3237.7448	3236.8106	80		867		FE	I	3240.3920	3239.4572	100	157.	896	
AS	II	3237.7543	3236.8200	1		425		CR	III	3240.47	3239.54	10		490	
MN	I	3237.950	3237.019	1		148		CU	II	3240.5848	3239.6499	2		612	
CU	II	3238.0772	3237.1429	2		612		TI	II	3240.597	3239.664	30	24.	1015	
FE	I	3238.161	3237.227	4	256.	896		FE	III	3240.6	3239.7			108	F
CU	II	3238.1760	3237.2417	15		612		MN	XI	3240.6	3239.7			726	F
CR	I	3238.20	3237.27	6		341		TI	III	3240.71	3239.77	15		227	
FE	II	3238.334	3237.402	5	81.	1015		V	II	3240.765	3239.833	8	61.	478	
MN	I	3238.377	3237.443	220		148		F	II	3240.844	3239.909	40		538	
CU	II	3238.5080	3237.5736	10		612		FE	I	3240.945	3240.013	1	545.	605	
CR	I	3238.659	3237.727	30	114.	341		CR	II	3240.99	3240.06	7	140.	340	
FE	II	3238.748	3237.815	8	81.	1015		FE	I	3241.080	3240.145	0	158.	378	
V	II	3238.808	3237.876	290	38.	478		MN	I	3241.331	3240.408	125	13.	148	
NI	II	3238.866	3237.932	5		835		MN	I	3241.545	3240.613	100	14.	148	
NI	II	3238.951	3238.017	100		835		TI	II	3241.64	3240.71	1	9.	1015	
CR	I	3239.019	3238.088	20	114.	341		TI	III	3241.65	3240.71	3		227	
F	II	3239.03	3238.10	1		174		V	II	3241.717	3240.785	J	1	478	
TI	I	3239.157	3238.224	40	179.	1015		TI	I	3241.77	3240.84		47.	1015	
ZN	III	3239.21	3238.28	5		162		MN	I	3241.814	3240.882	6		148	
FE	I	3239.247	3238.313	0	545.	378		CR	I	3241.88	3240.95	18	25.	341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
AR	II	3242.058	3241.123	10		506	
V	I	3242.099	3241.167	4		1000	
AL	IV	3242.277	3241.343	20		888	
CR	II	3242.30	3241.37	4	153.	340	
V	IV	3242.395	3241.460	40		829	
FE	I	3242.437	3241.502	0	27.	378	
SI	IV	3242.507	3241.572	A	5.0	767	
SI	IV	3242.518	3241.583	A	5.0	767	
SI	III	3242.557	3241.622	360	6.	768	F
NA	IV	3242.61	3241.68			108	
FE	II	3242.619	3241.685	2	80.	1015	
AR	II	3242.643	3241.708	20		506	
CU	II	3242.7493	3241.8138	10		612	
CR	II	3242.91	3241.98	2		340	
TI	II	3242.918	3241.984	60	2.	1015	
V	I	3242.965	3242.033	1		1000	
MN	I	3243.071	3242.139	1		148	
SE	II	3243.12	3242.19	150		468	
FE	I	3243.200	3242.268	1	255.	605	
P	IV	3243.203	3242.267	90		937	
CU	II	3243.3609	3242.4253	2		612	
V	I	3243.372	3242.440	0		489	
MN	I	3243.395	3242.463	2		148	
CR	I	3243.51	3242.58	2		341	
AS	II	3243.736	3242.800	2		425	
NI	I	3243.992	3243.058	125	22.	1015	
FE	I	3244.0435	3243.1077	4	192.	896	
CU	I	3244.097	3243.164	390		672	
V	I	3244.207	3243.274	3		1000	
NE	II	3244.3326	3243.3968	100	15.	389	
FE	I	3244.340	3243.404	8	710.	896	
TI	I	3244.447	3243.513	30	179.	1015	
AR	II	3244.6246	3243.6887	150	47.	867	
FE	II	3244.657	3243.723	8	119.	1015	
MN	I	3244.710	3243.777	220	14.	148	
TI	I	3244.737	3243.803	40	26.	1015	
NI	II	3244.830	3243.894	10		835	
V	I	3244.890	3243.957	1		1000	
NE	II	3245.0317	3244.0957	100		389	
P	IV	3245.035	3244.099	4		937	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CR	I	3245.054	3244.121	20	25.	341	
SC	II	3245.10	3244.17	M	5.	1015	P
FE	I	3245.1230	3244.1869	80	156.	896	
SI	IV	3245.128	3244.192	10	5.0	767	
AS	II	3245.142	3244.206	50		425	
CL	III	3245.37	3244.44	500	6.	38	
TI	I	3245.46	3244.53	J	47.	1015	
CR	I	3245.646	3244.713	4	114.	341	
MN	II	3245.651	3244.715	10		328	
CL	III	3245.98	3245.05	200		43	
CR	II	3246.22	3245.29	5	62.	340	
NI	I	3246.305	3245.370	20	108.	1015	
CR	I	3246.43	3245.50	12	25.	341	
CR	I	3246.476	3245.543	25	113.	341	
TI	III	3246.526	3245.589	15		227	
CU	II	3246.8767	3245.9402	12		612	
FE	I	3246.9018	3245.9653	4	27.	896	
FE	I	3246.9412	3246.0047	80	8.	896	
AL	IV	3247.078	3246.143	100		888	
MN	I	3247.086	3246.153	3		148	
MN	II	3247.31	3246.37	8		328	
FE	I	3247.4168	3246.4802	6	252.	896	
TI	III	3247.565	3246.628	80		227	
CU	II	3247.727	3246.790	5		612	
V	I	3247.76	3246.83	1		1000	
FE	I	3247.8970	3246.9602	12	95.	896	
CR	II	3247.93	3247.00	4	62.	340	
NI	II	3248.048	3247.111	5		835	
FE	II	3248.113	3247.177	4	81.	896	
FE	I	3248.146	3247.210	5		896	M
CR	I	3248.212	3247.278	15	25.	341	
FE	I	3248.2159	3247.2790	10	157.	896	
CR	II	3248.26	3247.33	3	81.	340	
FE	II	3248.327	3247.392	3	119.	1015	
AR	II	3248.418	3247.481	30		506	
CU	I	3248.474	3247.540	1000	1.	672	
V	II	3248.842	3247.908	4	109.	478	
SE	III	3248.99	3248.06	150		14	
NE	II	3249.0687	3248.1317	90	15.	389	
CR	III	3249.10	3248.16	20		490	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	I	3249.1417	3248.2047	8	157.	896		CR	II	3251.52	3250.59	1		340	
NE	II	3249.282	3248.345	100		1016		FE	I	3251.5605	3250.6229	12	95.	896	
NI	I	3249.393	3248.457	40	21.	1015		NI	I	3251.679	3250.743	45	39.	1015	
MN	I	3249.446	3248.512	260	14.	148		FE	I	3251.698	3250.760	5		896	M
TI	I	3249.538	3248.602	150	89.	1015		V	II	3251.709	3250.775	200	171.	478	
TI	II	3249.538	3248.602	50	66.	1015		CR	II	3251.71	3250.78	10		340	
V	I	3249.630	3248.696	3		1000		SI	III	3251.73	3250.79	3	61.	768	
TI	II	3249.64	3248.70		9.	1015		CU	II	3251.8116	3250.8739	10	9.0	612	
NI	II	3249.640	3248.703	10		835		BR	II	3251.818	3250.882	1		606	
CR	I	3249.83	3248.90	1		341		NA	II	3251.883	3250.947	25		693	
F	III	3249.91	3248.97	4		537		CR	I	3251.998	3251.063	3		341	
CR	I	3249.91	3248.98	2		341		SI	III	3252.03	3251.07	1	21.	768	
FE	I	3249.912	3249.037	1	308.	605		MN	I	3252.068	3251.134	125	14.	148	
FE	I	3250.129	3249.1918	6	253.	896		FE	I	3252.1713	3251.2335	15	93.	896	
CR	I	3250.157	3249.223	01		341		NI	II	3252.187	3251.249	20		835	
CO	III	3250.17	3249.24	2		673		MN	II	3252.258	3251.319	30		328	
TI	II	3250.306	3249.370	2	23.	1015		SC	II	3252.26	3251.32	3	5.	1015	
NI	I	3250.376	3249.440	30	10.	1015		SI	III	3252.321	3251.383	2	21.	768	
ZN	III	3250.39	3249.45	10		162		CR	I	3252.517	3251.582	18		341	
V	II	3250.398	3249.464	4	82.	478		CU	II	3252.702	3251.764	2		612	
CR	II	3250.44	3249.51	12		340		CR	I	3252.766	3251.831	40	113.	341	
FE	I	3250.442	3249.504	1	51.	378		V	II	3252.804	3251.869	200	108.	478	
V	I	3250.501	3249.567	10	13.	1000		SI	III	3252.809	3251.871	3	21.	768	
V	II	3250.552	3249.617	40	38.	478		TI	II	3252.848	3251.911	30	2.	1015	
FE	II	3250.593	3249.657	4	81.	1015		NI	II	3252.904	3251.966	30		835	
NI	II	3250.684	3249.746	15		835		CU	I	3253.155	3252.220	250		672	
V	I	3250.724	3249.790	0		1000		MN	II	3253.319	3252.380	10		328	
AR	II	3250.7378	3249.8003	140	47.	867		FE	II	3253.368	3252.430	6	78.	896	
NI	II	3250.773	3249.836	20		835		CR	II	3253.42	3252.49	25		340	
LI	II	3250.805	3249.868			307		NI	II	3253.577	3252.639	5		835	
MN	I	3250.827	3249.894	6		148		MN	II	3253.659	3252.720	30		328	
FE	II	3250.847	3249.911	1	78.	1015		CU	II	3253.7212	3252.7829	20		612	
V	I	3250.864	3249.930	3		1000		V	I	3253.80	3252.86	1		1000	
V	I	3250.967	3250.033	2		1000		TI	II	3253.851	3252.914	40	2.	1015	
NE	II	3251.290	3250.353	100		1016		FE	I	3253.8525	3252.9142	8	252.	896	
FE	I	3251.3092	3250.3716	15	142.	896		F	III	3253.870	3252.931	12		537	
FE	I	3251.3335	3250.3959	15	379.	896		O	III	3253.88	3252.94	10	9.	1015	
CU	II	3251.4029	3250.4652	95		612		TI	II	3253.88	3252.94		23.	1015	
SI	III	3251.49	3250.56	3	9.0	768		MN	I	3253.884	3252.949	220	14.	149	
CR	I	3251.51	3250.58	10	114.	341		CU	II	3254.0461	3253.1078	10		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SI	III	3254.055	3253.117	25	9.0	768		AS	II	3257.324	3256.385	2		425	
CR	I	3254.198	3253.262	10	114.	341		V	I	3257.40	3256.46	1		1000	
SI	III	3254.339	3253.401	80	12.	768		FE	III	3257.48	3256.54	10	75.	188	
AL	IV	3254.363	3253.426	15		888		CR	III	3257.53	3256.60	5		490	
P	III	3254.416	3253.478	10		936		MN	II	3257.57	3256.62	20		328	
FE	I	3254.5387	3253.6003	10	681.	896		V	I	3257.715	3256.779	1	138.	1000	
SI	III	3254.679	3253.741	40	9.0	768		CU	II	3258.0627	3257.1234	2		612	
V	III	3254.687	3253.749	20		325		FE	I	3258.1513	3257.2119	5	27.	896	
FE	I	3254.7634	3253.8249	8	250.	896		O	III	3258.174	3257.236	4		1032	
AR	II	3254.8573	3253.9188	30	46.	867		FE	I	3258.1752	3257.2358	5	451.	896	
FE	I	3254.8817	3253.9431	3	257.	896		FE	II	3258.296	3257.358	1	94.	1015	
MN	I	3254.972	3254.037	100	13.	148		MN	II	3258.46	3257.53	20		328	
MN	III	3255.00	3254.06	2		301		FE	I	3258.5317	3257.5923	12	90.	896	
TI	II	3255.187	3254.250	30	2.	1015		P	IV	3258.591	3257.652	120		937	
FE	I	3255.197	3254.261	1	249.	605		S	II	3258.74	3257.80	200	17.	265	
FE	I	3255.2994	3254.3608	60	620.	896		CR	I	3258.762	3257.826	40	113.	341	
O	III	3255.517	3254.579	1		1032		V	II	3258.829	3257.893	100	108.	478	
MN	III	3255.597	3254.658	2		301		FE	II	3258.832	3257.894	3	178.	1015	
FE	III	3255.6	3254.7			108	F	NA	II	3258.902	3257.964	90		693	
FE	I	3255.6653	3254.7265	5	308.	896		CR	II	3258.94	3258.00	3	152.	340	
V	II	3255.709	3254.773	260	38.	478		C	III	3258.940	3258.000	5	6.	34	
V	I	3255.719	3254.783	10	13.	1000		HE	I	3259.214	3258.275	5		497	
SI	III	3255.739	3254.800	80	9.0	768		MN	I	3259.350	3258.414	200	14.	148	
P	IV	3255.815	3254.876	40		937		FE	I	3259.567	3258.627	1	157.	378	
TI	III	3255.820	3254.881	7		227		SI	III	3259.604	3258.664	230	12.	768	
CR	I	3255.87	3254.94	2		341		CR	II	3259.70	3258.76	30	159.	340	
GE	III	3256.00	3255.05	40		406		FE	II	3259.714	3258.774	5	81.	896	
MN	II	3256.16	3255.22	2		328		O	III	3259.765	3258.826	1		1032	
CR	II	3256.24	3255.30	15	138.	340		AR	II	3259.8386	3258.8988	20		867	
NE	II	3256.3627	3255.4238	60	23.	389		TI	I	3259.98	3259.04	10	123.	1015	
FE	III	3256.43	3255.49	10	96.	188		FE	II	3259.992	3259.052	3	81.	896	
MN	I	3256.443	3255.508	5		148		P	III	3260.012	3259.073	25		936	
CR	II	3256.54	3255.60	3	153.	340		CL	II	3260.091	3259.151	195		613	
V	I	3256.584	3255.649	9		1000		CL	III	3260.26	3259.32	600	6.	38	
SC	I	3256.616	3255.678	6	9.	1015		AR	II	3260.276	3259.336	5		506	
AS	III	3256.63	3255.69	70		404		TI	I	3260.36	3259.42	20	123.	1015	
FE	II	3256.822	3255.884	8	1.	1015		V	I	3260.468	3259.531	5		1000	
CR	III	3257.01	3256.08	20		490		C	III	3260.481	3259.541	20	6.	34	
V	II	3257.012	3256.073	15		782		CR	I	3260.55	3259.61	2		341	
MN	I	3257.072	3256.137	220	14.	148		AR	II	3260.596	3259.656	60		506	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CO	III	3260.61	3259.68	20	44.	673		NI	II	3263.422	3262.481	1		835	
V	II	3260.620	3259.684	3	48.	478		NI	II	3263.555	3262.615	15		835	
NI	II	3260.718	3259.778	5		835		TI	I	3263.57	3262.63	10	88.	1015	
GE	III	3260.83	3259.90	20		406		CR	I	3263.71	3262.77	1		341	
NI	II	3260.887	3259.947	30		835		MN	I	3263.975	3263.037	2		148	
CR	I	3260.913	3259.976	25	114.	341		FE	III	3263.98	3263.04	4	64.	188	
FE	I	3260.9294	3259.9894	8	157.	896		GE	III	3264.12	3263.18	3		406	
CU	II	3260.9649	3260.0248	20		612		V	I	3264.174	3263.238	15	12.	1000	
CU	II	3261.1098	3260.1696	2		612		NI	II	3264.250	3263.309	10		835	
NA	II	3261.155	3260.216	25		693		V	II	3264.27	3263.33	20	38.	478	
MN	I	3261.174	3260.238	170	14.	148		FE	I	3264.3087	3263.3678	6	144.	896	
NI	II	3261.186	3260.246	10		635		NE	II	3264.3521	3263.4112	70	15.	389	
TI	I	3261.198	3260.259	30	89.	1015		TI	III	3264.367	3263.426	3		227	
TI	II	3261.198	3260.259	3	45.	1015		ZN	II	3264.4	3263.5	15		154	
FE	I	3261.2069	3260.2668	6	250.	896		FE	I	3264.428	3263.487	0	50.	378	
V	I	3261.319	3260.382			1000		CU	II	3264.4956	3263.5546	3		612	
V	I	3261.824	3260.889			1000		AR	II	3264.5121	3263.5712	90	46.	867	
O	III	3261.92	3260.98	150	8.	1015		FE	I	3264.624	3263.683	0	680.	378	
V	I	3262.017	3261.080	6		1000		TI	II	3264.626	3263.686	4	45.	1015	
NI	II	3262.027	3261.086	2		835		AR	I	3264.713	3263.772	10		517	
MN	II	3262.120	3261.180	140		328		CU	II	3264.8587	3263.9176	30		612	
FE	I	3262.2659	3261.3255	4	712.	896		V	II	3264.988	3264.047	15		782	
FE	II	3262.446	3261.509	1	195.	645		F	II	3265.025	3264.084	500		538	
CR	II	3262.48	3261.54	4	159.	340		MN	II	3265.112	3264.171	125		328	
TI	II	3262.535	3261.596	60	99.	1015		FE	III	3265.16	3264.22	10	64.	188	
TI	II	3262.535	3261.596	60	66.	1015		CR	II	3265.20	3264.26	35	61.	340	
CU	II	3262.5469	3261.6469	25		612		AR	I	3265.231	3264.291	10		517	
NI	II	3262.694	3261.753	40		835		NI	II	3265.305	3264.364	100		835	
MN	II	3262.70	3261.75	1		328		P	IV	3265.365	3264.424	60		937	
V	II	3262.74	3261.80	5	109.	478		NI	I	3265.38	3264.44	10		1015	N
FE	I	3262.742	3261.801	0		378		FE	I	3265.4533	3264.5121	8	90.	896	
MN	II	3262.810	3261.869	20		328		FE	I	3265.6369	3264.6957	4	157.	896	
CR	II	3262.82	3261.88	4		340		MN	I	3265.648	3264.710	170		148	
FE	I	3262.9492	3262.0086	5	710.	896		NI	II	3265.921	3264.980	20		835	
V	I	3263.000	3262.063	5		1000		FE	I	3265.9879	3265.0465	80	8.	896	
AR	II	3263.024	3262.083	20		506		NI	II	3266.115	3265.173	8		835	
C	III	3263.213	3262.272	40	6.	34		NI	II	3266.248	3265.306	20		835	
FE	I	3263.214	3262.274	3		896		CR	I	3266.28	3265.34	1		341	
MN	I	3263.271	3262.333	3		148		CU	II	3266.3362	3265.3948	10		612	
FE	III	3263.38	3262.44	90	74.	188		CL	III	3266.39	3265.45	0		43	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
O	III	3266.40	3265.46	250	8.	1015		CR	II	3269.41	3268.47	10	62.	340	
NI	II	3266.408	3265.466	30		835		FE	II	3269.453	3268.512	3	118.	1015	
TI	I	3266.420	3265.480	20	123.	1015		TI	I	3269.55	3268.61	10	88.	1015	
FE	I	3266.5580	3265.6166	50	91.	896		NI	II	3269.596	3268.654	5		835	
NI	II	3266.671	3265.730	100		835		MN	I	3269.659	3268.720	70		148	
V	I	3266.825	3265.887	5	138.	1000		CU	II	3269.7013	3268.7591	12		612	
V	II	3266.832	3265.893	100	74.	478		V	II	3269.88	3268.94	2		478	
NI	II	3266.838	3265.896	30		835		NI	I	3269.912	3268.971	10	91.	1015	
CR	I	3266.86	3265.93	1		341		AR	II	3269.9333	3268.9910	50	46.	867	
FE	I	3266.865	3265.923	4		896	M	BE	I	3269.990	3269.038	7		330	
NE	V	3266.9	3266.0	58		885	M	BR	II	3269.995	3269.053	50		606	
CU	I	3266.961	3266.023	250		672		CA	I	3270.022	3269.080	7	12.	1018	
V	I	3267.013	3266.078	4		1000		CR	II	3270.04	3269.10	30		340	
CR	II	3267.19	3266.25	8	121.	340		CO	III	3270.16	3269.23	2		673	
TI	II	3267.37	3266.43	1	57.	1015		FE	I	3270.1709	3269.2285	3	710.	896	
NI	II	3267.488	3266.546	10		835		V	II	3270.229	3269.287	30		782	
CR	I	3267.569	3266.631	15	25.	341		FE	I	3270.358	3269.416	2		378	
V	III	3267.59	3266.65	1		325		NI	II	3270.374	3269.432	15		835	
FE	III	3267.82	3266.88	1000	7.	183		GE	I	3270.4313	3269.4889	1000		7	
V	II	3267.85	3266.91	1	137.	478		V	II	3270.505	3269.563	30		782	
FE	II	3267.879	3266.938	4	65.	1015		F	III	3270.59	3269.65	4		537	
FE	II	3267.976	3267.035	3	80.	1015		CR	II	3270.70	3269.76	15	138.	340	
CR	I	3267.977	3267.038	3		341		TI	II	3270.71	3269.77	1	57.	1015	
P	II	3268.098	3267.156	5		496		FE	II	3270.714	3269.772	2	118.	1015	
AL	IV	3268.154	3267.213	500		888		NE	II	3270.8139	3269.8713	90	15.	389	
O	III	3268.25	3267.31	60	8.	1015		SC	I	3270.846	3269.904	15	9.	1015	
NI	II	3268.271	3267.329	40		835		NI	II	3270.867	3269.925	20		835	
TI	I	3268.35	3267.41		64.	1015		AR	II	3270.876	3269.934	10		506	
NE	V	3268.4	3267.5	19		885	M	FE	I	3270.8863	3269.9437	3	90.	896	
V	II	3268.648	3267.709	550	7.	478		CL	VI	3271.0	3270.1			111	
F	II	3268.688	3267.747	1		538		CU	II	3271.0530	3270.1104	9		612	
MN	I	3268.728	3267.789	80		148		V	II	3271.055	3270.115	10	94.	478	
NI	II	3268.904	3267.962	3		835		CR	II	3271.07	3270.13	40	61.	340	
NI	I	3269.005	3268.064	20		1015	N	FE	III	3271.17	3270.23	10	63.	188	
V	IV	3269.019	3268.077	15		829		NI	II	3271.260	3270.317	140		835	
CU	II	3269.0411	3268.0990	2		612		MN	I	3271.292	3270.353	60		148	
F	II	3269.093	3268.151	4		538		SI	III	3271.399	3270.456	60	12.	768	
CU	II	3269.1316	3268.1895	4		612		AR	II	3271.417	3270.474	50		506	
FE	I	3269.1748	3268.2326	8	95.	896		TI	I	3271.504	3270.562	30	123.	1015	
CU	I	3269.217	3268.278	250		672		MN	II	3271.597	3270.655	100		328	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	3271.598	3270.656	2		782		V	I	3273.965	3273.025	7	71.	1000	
CR	I	3271.648	3270.708	8	219.	341		CR	II	3274.13	3273.19	3		340	
MN	I	3271.720	3270.781	5		148		AR	II	3274.2606	3273.3172	80	71.	867	
MN	II	3271.728	3270.784	30		328		NI	II	3274.332	3273.389	2		835	
NE	II	3271.7428	3270.8000	90	2.	389		NI	I	3274.44	3273.50	5	108.	1015	
O	II	3271.86	3270.92	120	39.	1015	P	FE	II	3274.442	3273.499	3	118.	1015	
FE	I	3271.9425	3270.9997	50	91.	896		O	II	3274.46	3273.52	120	39.	1015	
MN	II	3271.954	3271.010	10		328		NI	II	3274.463	3273.519	4		835	
CR	II	3271.97	3271.03	1		340		FE	III	3274.47	3273.53	90	7.	188	
NI	I	3272.060	3271.118	50	23.	1015		SC	I	3274.562	3273.619	20	9.	1015	
V	II	3272.064	3271.124	620	7.	478		MN	II	3274.568	3273.624	10		328	
NI	I	3272.11	3271.17	K	108.	1015		V	II	3274.643	3273.700	2		782	
MN	II	3272.117	3271.174	40		328		MN	II	3274.701	3273.791	15		328	
AR	I	3272.134	3271.188	40		517		CU	I	3274.898	3273.957	1000	1.	672	
NI	II	3272.142	3271.199	5		835		CR	III	3274.94	3274.00	1		490	
MN	II	3272.291	3271.347	20		328		MN	II	3274.987	3274.043	30		328	
V	III	3272.33	3271.38	0		325		TI	I	3274.990	3274.047	50	123.	1015	
V	I	3272.33	3271.39	3		1000		NI	II	3275.091	3274.148	15		835	
FE	I	3272.4278	3271.4848	5	680.	896		CR	III	3275.10	3274.16	1		490	
V	I	3272.575	3271.635	12	12.	1000		NA	II	3275.161	3274.218	60		693	
TI	II	3272.594	3271.652	25	66.	1015		NI	II	3275.253	3274.310	10		835	
FE	I	3272.6260	3271.6829	5	49.	896		FE	I	3275.394	3274.450	5	710.	896	
CR	I	3272.87	3271.93	4		341		V	II	3275.44	3274.50	10	163.	478	
NI	II	3272.985	3272.042	20		835		CU	II	3275.446	3274.503	9		612	
TI	II	3273.022	3272.080	25	66.	1015		NI	II	3275.460	3274.517	100		835	
MN	II	3273.079	3272.138	20		328		MN	II	3275.554	3274.610	100		328	
CR	III	3273.10	3272.16	1		490		CA	I	3275.611	3274.667	10	12.	1018	
V	I	3273.127	3272.188	1		1000		NI	II	3275.861	3274.917	100		835	
NI	II	3273.166	3272.223	5		835		V	IV	3275.874	3274.931	5		829	
S	II	3273.19	3272.25	0	17.	285		FE	III	3275.89	3274.95	25	96.	188	
TI	IV	3273.44	3272.50	1		721		MN	II	3275.953	3275.009	10		328	
FE	I	3273.539	3272.596	2	95.	378		NE	II	3276.1235	3275.1796	90	29.	389	
FE	I	3273.649	3272.710	1	712.	605		V	II	3276.199	3275.254	3		782	
MN	II	3273.67	3272.72	20		328		TI	II	3276.236	3275.293	3	23.	1015	
CR	II	3273.67	3272.73	1		340		NI	I	3276.54	3275.60	K	107.	1015	
V	II	3273.675	3272.732	30		782		O	V	3276.57	3275.63	3		83	
TI	IV	3273.716	3272.773	4		721		AR	II	3276.5876	3275.6436	40		867	
CO	VI	3273.8	3272.9			108	F	FE	I	3276.6158	3275.6718	3	308.	896	
CR	II	3273.81	3272.87	4		340		CR	I	3276.67	3275.73	2		341	
MN	I	3273.956	3273.016	50		148		AL	II	3276.7118	3275.7683	40	5.	379	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
C.	I	3276.758	3275.817	3		341		TI	II	3279.234	3278.290	30	66.	1015	
FE	I	3276.7846	3275.8406	3	450.1	896		TI	III	3279.25	3278.31	G		227	
CU	II	3276.8467	3275.9026	20		612		MN	I	3279.493	3278.551	100		148	
CR	II	3276.85	3275.91	10	151.	340		FE	I	3279.6751	3278.7303	8	250.	896	
NI	II	3276.927	3275.982	120		835		FE	I	3279.6851	3278.7403	8	144.	896	
Ge	II	3276.960	3276.016	2		676		V	III	3279.690	3278.745	10		325	
CR	III	3276.97	3276.02	30		490		TI	III	3279.698	3278.754	7		227	
FE	III	3277.02	3276.08	570	7.	188		CR	II	3279.72	3278.78	2	113.	340	
AR	II	3277.029	3276.085	30		506		TI	I	3279.866	3278.922	120	63.	1015	
TI	III	3277.058	3276.114	3		227		TI	II	3279.866	3278.922	35	23.	1015	
V	II	3277.08	3276.12	700	7.	478		CU	II	3279.910	3278.965	2		612	
CR	II	3277.18	3276.24	1	172.	340		NI	II	3280.086	3279.141	50		835	
SI	III	3277.208	3276.264	160.	12.	768		NI	II	3280.106	3279.161	25		835	
NI	II	3277.276	3276.331	2		835		SI	III	3280.203	3279.258	80	12.	768	
FE	I	3277.4138	3276.4696	5	90.	896		MN	III	3280.240	3279.295	5		301	
P	III	3277.537	3276.592	4		936		CR	I	3280.287	3279.344	2		341	
FE	III	3277.550	3276.606	5	92.	1015		BR	II	3280.409	3279.465	0		606	
NI	II	3277.691	3276.747	2		835		CR	II	3280.48	3279.54	5	121.	340	
MN	II	3277.698	3276.753	140		328		NI	II	3280.501	3279.556	2		835	
TI	II	3277.718	3276.774	5	45.	1015		FE	II	3280.594	3279.649	2	118.	1015	
CL	II	3277.726	3276.781	210	30.	613		FE	I	3280.6750	3279.7299	4	449.	896	
FE	I	3277.922	3276.978	0	51.	378		MN	I	3280.692	3279.751	5		148	
TI	II	3277.942	3276.998	0	8.	1015		CU	I	3280.757	3279.815	440	15.	672	
V	II	3278.023	3277.082	10	137.	478		V	II	3280.786	3279.844	260	73.	478	
NI	I	3278.17	3277.23	5	90.	1015		O	III	3280.86	3279.92	4	29.	1015	P
CO	VI	3278.2	3277.3			108	F	AR	II	3280.8864	3279.9413	20		867	
CU	I	3278.251	3277.310	250		672		CR	I	3280.89	3279.95	1		341	
AS	II	3278.258	3277.313	2		425		TI	II	3280.91	3279.97	M	57.	1015	
FE	II	3278.291	3277.347	9	1.	1015		TI	II	3280.940	3279.995	4	35.	1015	
V	II	3278.390	3277.448	15	194.	478		MN	II	3281.023	3280.078	50		328	
CR	III	3278.46	3277.42	50		490		NI	II	3281.030	3280.085	2		835	
O	II	3278.63	3277.69	120	23.	1015		CR	I	3281.05	3280.11	2		341	
V	II	3278.65	3277.71	30	137.	478		P	III	3281.131	3280.185	40		936	
NI	II	3278.655	3277.711	75		835		FE	I	3281.2045	3280.2593	50	620.	896	
V	I	3278.733	3277.791	0		1000		CR	I	3281.30	3280.36	2		341	
P	III	3278.759	3277.815	120		936		V	III	3281.31	3280.36	2		325	
FE	II	3278.797	3277.853	0	65.	1015		MN	I	3281.311	3280.370	5		148	
CR	I	3278.815	3277.873	8	219.	341		TI	I	3281.336	3280.391	20	88.	1015	
V	I	3278.880	3277.939	5	12.	1000		NI	II	3281.352	3280.407	50		835	
MN	I	3279.004	3278.062	15		148		NI	II	3281.414	3280.469	3		835	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	III	3281.52	3280.58	90				AS	II	3283.9625	3283.0166	20			
NI	II	3281.606	3280.661	30	7.	188		CR	II	3283.98	3283.04	20	159.	425	
V	II	3281.659	3280.714	8		835		CU	II	3284.0417	3283.0958	2		612	
FE	I	3281.6927	3280.7473	4	451.	782		NI	II	3284.059	3283.113	75		835	
MN	I	3281.706	3280.763	100		896		P	II	3284.083	3283.137	15		496	
						148									
GE	II	3281.782	3280.837	2		676		TI	II	3284.09	3283.14	M	57.	1015	
CU	II	3282.021	3281.076	2		612		CU	II	3284.1891	3283.2431	9		612	
V	II	3282.062	3281.120	40	136.	478		P	III	3284.217	3283.271	60		936	
CU	III	3282.069	3281.123	1		724		FE	III	3284.24	3283.30	10	14.	188	
NI	II	3282.214	3281.269	20		835		V	I	3284.253	3283.311	15	12.	1000	
FE	II	3282.238	3281.293	7	1.	1015		AL	III	3284.262	3283.316	20	10.	826	
MN	I	3282.357	3281.415	1		148		MN	II	3284.27	3283.32	2		328	
MN	I	3282.413	3281.532	2		148		CR	III	3284.35	3283.41	5.		490	
NI	II	3282.537	3281.592	2		835		CL	III	3284.36	3283.41	600	2.	38	
CR	III	3282.61	3281.66	20		490		FE	I	3284.3640	3283.4180	4	27.	896	
CU	II	3282.6419	3281.6963	70		612		MN	II	3284.402	3283.456	20		328	
AR	II	3282.6472	3281.7016	130	47.	867		NI	II	3284.483	3283.537	30		835	
V	II	3282.697	3281.755	10	136.	478		FE	I	3284.489	3283.543	4		896	
FE	I	3282.770	3281.824	1	50.	378		FE	III	3284.69	3283.75	10	7.	188	
NI	II	3282.770	3281.824	10		835		CR	III	3284.70	3283.76	5		490	
NI	I	3282.825	3281.880	25	106.	1015		MN	II	3284.97	3284.02	5		328	
NI	II	3282.883	3281.938	100		835		MN	II	3285.08	3284.12	2		328	
O	III	3282.89	3281.94	25	8.	1015		V	I	3285.304	3284.361	6	71.	1000	
CU	II	3282.9563	3282.0106	10		612		V	III	3285.31	3284.36	20		325	
NI	II	3282.990	3282.044	20		835		NI	I	3285.378	3284.432	20	96.	1015	
NI	II	3283.182	3282.236	10		835		P	III	3285.446	3284.499	4		936	
BR	II	3283.205	3282.260	50		606		V	IV	3285.506	3284.560	50		829	
ZN	I	3283.273	3282.328	200	4.	830		O	III	3285.52	3284.57	40	8.	1015	
TI	II	3283.274	3282.329	25	66.	1015		FE	I	3285.5335	3284.5872	8	91.	896	
V	II	3283.476	3285.534	150	72.	478		NI	II	3285.607	3284.660	180		835	
CR	I	3283.50	3282.56	2		341		V	II	3285.624	3284.678	3		782	
CU	II	3283.5480	3282.6022	5		612		CR	III	3285.65	3284.70	2		490	
NE	III	3283.6	3282.7	M		895		CR	I	3285.78	3284.84	2		341	
NI	I	3283.641	3282.696	40	7.	1015		V	II	3285.780	3284.834	80		782	
CU	I	3283.658	3282.716	370		672		MN	II	3285.891	3284.945	40		328	
FE	I	3283.6623	3282.7165	3	449.	896		FE	II	3285.942	3284.996	0	93.	1015	
NI	I	3283.772	3282.827	25	106.	1015		CU	I	3285.961	3285.017	1		672	
FE	I	3283.8361	3282.8903	10	680.	896		V	II	3285.965	3285.022	50	108.	478	
BE	I	3283.851	3282.905	7		333		CR	III	3286.06	3285.12	10		490	
AS	II	3283.9325	3282.9866	100		425		AL	IV	3286.08	3285.13	600		888	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	3286.13	3285.18	2		328		CR	II	3288.98	3288.04	15	62.	340	
FE	I	3286.1401	3285.1936	5	396.	896		MN	II	3288.983	3288.035	50		328	
NI	II	3286.227	3285.281	20		835		NI	II	3288.998	3288.050	3		835	
FE	II	3286.363	3285.417	8	1.	896		TI	II	3289.089	3288.142	0	8.	1015	
MN	I	3286.425	3285.482	1		148		MN	II	3289.236	3288.288	20		328	
CO	VI	3286.5	3285.6			108	F	V	II	3289.268	3288.324	20	89.	478	
NA	II	3286.546	3285.600	150		693		TI	II	3289.375	3288.428	5	66.	1015	
V	II	3286.615	3285.672	3	162.	478		V	I	3289.378	3288.435	2		1000	
AR	III	3286.80	3285.85	250	1.	1015		MN	I	3289.492	3288.548	1		148	
CR	III	3286.87	3285.92	30		490		TI	II	3289.522	3288.575	5	66.	1015	
CR	II	3286.89	3285.95	20	137.	340		TI	I	3289.54	3288.59		63.	1015	
FE	I	3286.9625	3286.0158	5	90.	896		ZN	III	3289.55	3288.60	10		162	
MN	II	3286.986	3286.040	10		328		MN	I	3289.563	3288.644	2		148	
CA	I	3287.012	3286.065	15	12.	1018		FE	I	3289.5962	3288.6488	4	144.	896	
FE	III	3287.1	3286.2			108	F	FE	I	3289.637	3288.690	3	144.	896	
CU	I	3287.136	3286.193	2		672		FE	III	3289.75	3288.81	570	7.	188	
CR	II	3287.28	3286.34	1	172.	340		NI	II	3289.797	3288.850	15		835	
CR	I	3287.298	3286.355	15		341		NI	II	3289.901	3288.954	30		835	
FE	I	3287.3918	3286.4450	4	710.	896		FE	I	3289.9122	3288.9648	5	90.	896	
MN	II	3287.561	3286.613	20		328		MN	II	3289.950	3289.002	40		328	
FE	I	3287.6977	3286.7508	125	91.	896		NI	II	3289.990	3289.043	50		835	
TI	II	3287.703	3286.756	0	89.	1015		MN	I	3290.051	3289.106	1		148	
CR	III	3287.82	3286.88	5		490		BR	II	3290.227	3289.280	50		606	
NI	I	3287.893	3286.946	40	19.	1015		FE	II	3290.294	3289.347	7	65.	1015	
NI	I	3287.93	3286.98		107.	1015		FE	I	3290.3802	3289.4327	2	380.	896	
V	II	3288.02	3287.08	6		782		V	I	3290.469	3289.525		M	1000	
FE	I	3288.0369	3287.0900	8	396.	896		NI	II	3290.728	3289.781	100		835	
MN	II	3288.08	3287.13	20		328		CL	III	3290.75	3289.80	700	2.	38	
NI	I	3288.168	3287.221	10	55.	1015		AR	I	3290.892	3289.946	10		517	
MN	II	3288.169	3287.222	80		328		NI	II	3290.923	3289.976	140		835	
AL	III	3288.249	3287.302	40	10.	826		MN	II	3291.019	3290.070	10		328	
CR	III	3288.31	3287.36	10		490		O	II	3291.08	3290.13	60	23.	1015	
FE	II	3288.415	3287.468	1	118.	1015		CU	II	3291.3652	3290.4175	400		612	
AS	II	3288.429	3287.481	20		425		CU	I	3291.485	3290.541	390		672	
MN	III	3288.436	3287.489	100		301		FE	I	3291.6583	3290.7104	4	90.	896	
O	II	3288.54	3287.59	200	23.	1015		CR	I	3291.89	3290.95	1		341	
TI	II	3288.604	3287.657	40	89.	1015		MN	I	3291.914	3290.969	25		148	
AS	II	3288.613	3287.666	2		425		FE	I	3291.9358	3290.9879	12	95.	896	
CO	III	3288.63	3287.68	10	44.	673		CU	II	3292.0077	3291.0597	25		612	
CR	I	3288.66	3287.72	2		341		CR	II	3292.17	3291.23	6		340	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	3292.221	3291.273	4		762		CR	II	3295.90	3294.95	6		340	
CR	I	3292.33	3291.39	2	161.	341		CU	II	3296.0508	3295.1018	90		612	
FE	I	3292.358	3291.410	0	954.	378		O	II	3296.08	3295.13	40	23.	1015	
MN	II	3292.369	3291.420	10		328		FE	II	3296.186	3295.240	4	79.	1015	
AR	II	3292.389	3291.441	60		506		FE	III	3296.19	3295.24	6		1015	N
V	I	3292.622	3291.678	4	12.	1000		CO	VI	3296.3	3295.4			108	F
MN	II	3292.671	3291.723	10		328		MN	II	3296.30	3295.36	5		328	
CR	II	3292.69	3291.75	40	68.	340		CR	II	3296.37	3295.42	50	51.	340	
CU	II	3292.7571	3291.6090	20		612		V	I	3296.411	3295.465	1		1000	
FE	I	3292.9688	3292.0207	40	680.	896		V	IV	3296.450	3295.501	10		829	
FE	III	3292.98	3292.04	150	7.	188		MN	II	3296.482	3295.533	20		328	
CR	I	3293.01	3292.07	2		341		TI	III	3296.713	3295.764	15		227	
TI	I	3293.026	3292.078	200	62.	1015		V	I	3296.734	3295.788	0		1000	
CU	II	3293.0714	3292.1231	60		612		FE	II	3296.760	3295.814	6	1.	1015	
MG	IV	3293.29	3292.34	80		861		MN	I	3296.786	3295.840	20		148	
CU	I	3293.338	3292.393	112		672		MN	I	3296.970	3296.025	40		148	
V	I	3293.506	3292.561	0		1000		MN	III	3296.985	3296.036	7		301	
FE	I	3293.5376	3292.5893	20	91.	896		F	II	3297.193	3296.244	120		538	
CU	II	3293.6673	3292.7189	35		612		NI	I	3297.21	3296.26	5		602	
CU	I	3293.772	3292.827	250		672		V	III	3297.290	3296.341	20		325	
CU	I	3293.910	3292.965	210		672		FE	I	3297.4134	3296.4640	4	250.	896	
CU	II	3293.9449	3292.9964	15		612		F	II	3297.487	3296.538	200		538	
FE	I	3294.0887	3293.1402	6	51.	896		HE	I	3297.722	3295.773	7		497	
F	II	3294.275	3293.326	1		538		FE	I	3297.7525	3296.8031	3	619.	896	
CU	II	3294.2811	3293.3325	40		612		FE	II	3297.772	3296.826	2	92.	1015	
TI	II	3294.43	3293.48	M	57.	1015		CR	III	3297.78	3296.84	20		490	
AR	II	3294.5889	3293.6403	160		867		CR	I	3297.783	3296.837	3		341	
NI	I	3294.623	3293.674	20	90.	1015		MN	I	3297.826	3296.879	125		148	
CU	I	3294.760	3293.815	2		672		MN	II	3297.92	3296.97	5		328	
CR	I	3294.78	3293.83	10	219.	341		AR	II	3297.9802	3297.0307	20		867	
CR	I	3294.85	3293.91	1		341		CU	I	3298.037	3297.093	0		672	
AR	II	3294.8733	3293.9246	120		867		CU	II	3298.1478	3297.1983	90		612	
MN	I	3294.975	3294.030	1		148		CR	I	3298.28	3297.33	2		341	
CU	I	3295.113	3294.168	5		672		CU	II	3298.2956	3297.3461	15		612	
V	IV	3295.208	3294.259	40		829		CU	II	3298.5184	3297.5687	15		612	
F	II	3295.268	3294.319	150		538		TI	I	3298.63	3297.68	J	122.	1015	
CU	II	3295.2841	3294.3353	30		612		NE	II	3298.6753	3297.7256	150	2.	389	
CU	III	3295.405	3294.457	5		724		FE	II	3298.835	3297.888	5	91.	1015	
FE	III	3295.45	3294.50	40	14.	188		CR	III	3298.89	3297.95	20		490	
MN	I	3295.880	3294.934	1		148		AL	IV	3298.890	3297.943	100		888	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
NI	I	3298.97	3298.02	K	91.	1015		SC	IV	3301.986	3301.038	1		720	
MN	II	3298.979	3298.029	80		328		CR	II	3302.16	3301.21	15	137.	340	
FE	I	3299.0814	3298.1316	15	90.	896		FE	I	3302.1681	3301.2176	4	380.	896	
V	I	3299.092	3298.147	15	12.	1000		CU	II	3302.1791	3301.2286	250		612	
TI	II	3299.16	3298.21	1	44.	1015		MN	II	3302.20	3301.25	5		328	
MN	I	3299.175	3298.228	110		148		NA	II	3302.294	3301.346	10		693	
CR	I	3299.260	3298.313	20	161.	341		CR	IX	3302.3	3301.4			726	F
CR	III	3299.30	3298.37	1		490		F	II	3302.383	3301.432	120		538	
V	IV	3299.321	3298.371	20		829		FE	I	3302.392	3301.441	4		896	M
CR	I	3299.34	3298.39	1		341		MN	II	3302.46	3301.50	2		328	
FE	I	3299.487	3298.537	1	710.	378		FE	III	3302.5	3301.6			108	F
AR	I	3299.94	3298.99	4		517		O	II	3302.51	3301.56	25		1015	
MG	III	3300.00	3299.05	230		2		TI	II	3302.66	3301.71	2	23.	1015	
FE	I	3300.026	3299.076	3	710.	896		CR	III	3302.73	3301.79	10	44.	490	
V	I	3300.037	3299.089	3	55.	1000		CL	II	3302.80	3301.85	1		613	
MN	II	3300.06	3299.11	10		328		AR	III	3302.83	3301.88	200	1.	1015	
V	I	3300.203	3299.256	1		1000		FE	I	3302.8635	3301.9128	4	617.	896	
AR	I	3300.21	3299.26	4		517		TI	II	3303.044	3302.096	0	8.	1015	
O	III	3300.31	3299.36	25	3.	1015		CR	III	3303.11	3302.16	5		490	
SC	II	3300.36	3299.41	M	35.	1015	P	CR	I	3303.14	3302.19	5		341	
TI	I	3300.360	3299.413	100	61.	1015		MN	III	3303.223	3302.272	90		301	
ZN	II	3300.364	3299.417	50		154		NA	I	3303.319	3302.369	900	2.	1019	
TI	II	3300.39	3299.44	M	8.	1015		B	II	3303.39	3302.44	10		532	
FE	I	3300.4563	3299.5062	3	49.	896		ZN	I	3303.535	3302.584	300	4.	830	
V	I	3300.535	3299.588	0		1000		CU	I	3303.734	3302.787	4		672	
CO	VI	3300.7	3299.8			108	F	FE	II	3303.809	3302.861	4	1.	1015	
V	I	3300.919	3299.972	2		1000		CR	I	3303.821	3302.874	18	161.	341	
NE	V	3301.0	3300.1			109	F	CR	III	3303.84	3302.89	7		490	
FE	II	3301.003	3300.056	00	228.	1015		ZN	II	3303.869	3302.921	50		154	
F	II	3301.043	3300.093	150		538		ZN	I	3303.891	3302.941	250	4.	830	
FE	III	3301.15	3300.20	40	96.	188		FE	VII	3303.9	3303.0			1034	
CU	II	3301.1626	3300.2123	4		612		NA	I	3303.929	3302.979	800	2.	1019	
AR	I	3301.352	3300.402	60		517		CU	II	3304.1327	3303.1817	15		612	
CU	II	3301.3873	3300.4370	80		612		MN	I	3304.229	3303.280	100		148	
FE	III	3301.4	3300.5			108	F	CR	I	3304.27	3303.32	1		341	
CU	II	3301.5913	3300.6409	90		612		CR	III	3304.31	3303.36	3		490	
CR	I	3301.74	3300.79	4		341		MN	II	3304.378	3303.427	10		328	
CU	II	3301.8319	3300.8814	110		612		V	III	3304.399	3303.448	30		325	
MN	I	3301.891	3300.943	10		148		FE	II	3304.414	3303.466	4	1.	1015	
CL	III	3301.90	3300.95	300	2.	38		CU	II	3304.4643	3303.5132	75		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	3304.481	3303.529	4		896	M	O	II	3307.55	3306.60	90	23.	1015	
FE	I	3304.5196	3303.5684	5	449	896		N	III	3307.58	3306.63	60	12.0	521	
MN	I	3304.629	3303.681	1		148		FE	I	3307.652	3306.706	M	396.	605	
V	IV	3304.670	3303.719	5		829		TI	I	3307.828	3306.879	100	190.	1015	
FE	I	3304.725	3303.774	4		896	M	FE	III	3307.89	3306.94	40	73.	188	
CU	II	3304.8210	3303.8698	25		612		CO	VI	3307.9	3307.0			108	F
F	II	3304.830	3303.879	250		538		CR	II	3307.90	3306.95		150.	340	
N	III	3304.98	3304.03	40	12.0	521		MN	I	3307.947	3306.998	40		148	
FE	III	3305.26	3304.31	9		1015	N	FE	I	3307.9575	3307.0055	5	450.	896	
GE	II	3305.292	3304.341	10		676		NI	I	3307.962	3307.013	10.	107.	1015	
FE	I	3305.298	3304.346	1	710.	378		CR	II	3307.97	3307.02	50	51.	340	
CR	I	3305.34	3304.39	1		341		S		3308.	3307.			107	N
FE	II	3305.382	3304.433	1	93.	1015		FE	I	3308.053	3307.144	5		896	M
CR	II	3305.68	3304.73	5	120.	340		AR	II	3308.1804	3307.2283	150		867	
MN	I	3305.846	3304.898	15		148		FE	I	3308.1852	3307.2331	25	617.	896	
NA	II	3305.899	3304.950	25		693		FE	III	3308.48	3307.53	60	7.	188	
NI	I	3305.899	3304.950	30	108.	1015		NE	VI	3308.5	3307.6	38		685	M
V	I	3306.050	3305.101	0		1000		CU	II	3308.6097	3307.6576	35		612	
N	VII	3306.1	3305.1			309		FE	I	3308.638	3307.685	5		896	M
O	II	3306.10	3305.15	90	23.	1015		TI	II	3308.666	3307.717	0	8.	1015	
FE	III	3306.17	3305.22	250	7.	188		CR	I	3308.703	3307.754	30	78.	341	
CR	I	3306.181	3305.232	5		341		MN	II	3308.762	3307.810	100		328	
CL	VII	3306.2	3305.3			111		CU	II	3308.8249	3307.8726	35		612	
CO	III	3306.32	3305.38	15	44.	673		CL	II	3308.831	3307.879	255	37.	613	
CU	I	3306.478	3305.530	4		672		CU	I	3308.897	3307.948	25		672	
FE	II	3306.583	3305.634	1	79.	1015		MN	I	3309.014	3308.065	8		148	
O	III	3306.79	3305.84	1	8.	1015	P	CL	II	3309.04	3308.09	3		613	
FE	I	3306.9217	3305.9700	110	91.	896		CU	II	3309.0574	3308.1051	25		612	
MN	I	3306.953	3306.004	2		148		V	II	3309.081	3308.129	10		782	
ZN	II	3306.959	3306.010	75		154		CR	II	3309.10	3308.15	18	137.	340	
TI	II	3307.002	3306.053	M	44.	1015		V	I	3309.199	3308.250	3	12.	1000	
LI	II	3307.236	3306.284	I		307		CU	II	3309.2049	3308.2526	2		612	
FE	I	3307.2949	3306.3430	140	544.	896		TI	I	3309.341	3308.391	100	87.	1015	
FE	I	3307.3090	3306.3571	140	91.	896		CU	II	3309.3861	3308.4337	4		612	
CU	II	3307.3408	3306.3890	2		612		MN	II	3309.413	3308.461	40		328	
MG	III	3307.35	3306.39	270		2		MN	I	3309.727	3308.778	40		148	
CL	II	3307.377	3306.425	240	37.	613		TI	II	3309.756	3308.806	8	7.	1015	
MN	II	3307.416	3306.464	20		328		V	I	3309.84	3308.89	1		1000	
FE	I	3307.4329	3306.4810	6	680.	896		NI	I	3309.86	3308.91	K	107.	1015	
BR	II	3307.532	3306.583	0		606		P	II	3309.877	3308.925	150		496	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	I	3310.128	3309.179	8	55.	1000		O	III	3313.25	3312.30	60	3.	1015	
CR	I	3310.187	3309.238	1		341		NI	I	3313.271	3312.320	50	106.	1015	
NI	I	3310.27	3309.32		105.	1015		GE	II	3313.516	3312.563	50		676	
TI	I	3310.27	3309.32		122.	1015		CU	II	3313.6305	3312.6770	7		612	
FE	III	3310.35	3309.40	6		1015	N	TI	I	3313.641	3312.690	50	190.	1015	
MN	I	3310.377	3309.428	2		148		CR	I	3313.657	3312.707	3		341	
NI	I	3310.378	3309.428	10		1015	N	FE	II	3313.658	3312.707	1	1.	1015	
TI	I	3310.451	3309.501	150	87.	1015		SC	II	3313.687	3312.736	5	41.	1015	
TI	II	3310.48	3309.53		44.	1015		CL	II	3313.723	3312.769	148	8.	613	
CU	I	3310.507	3309.558	4		672		MN	II	3313.736	3312.783	20		328	
MN	III	3310.670	3309.717	5		301		TI	II	3313.85	3312.90		M	56.	1015
TI	I	3310.680	3309.730	60	190.	1015		NI	I	3313.943	3312.992	20	106.	1015	
NE	II	3310.6904	3309.7377	150.	7.	389		V	I	3313.95	3313.00	2		1000	
CR	I	3310.78	3309.83	15	161.	341		TI	III	3313.961	3313.008	80		227	
NI	I	3311.152	3310.202	25	38.	1015		CR	I	3313.973	3313.023	7		341	
BR	II	3311.23	3310.28	10		606		MN	I	3314.001	3313.050	1		148	
V	II	3311.283	3310.331	5		782		CR	II	3314.02	3313.07	20	119.	340	
CU	II	3311.291	3310.338	1		612		CU	I	3314.149	3313.199	0		672	
FE	I	3311.2944	3310.3415	10	449.	896		MN	I	3314.150	3313.200	50		148	
FE	I	3311.4432	3310.4903	4	679.	896		AL	II	3314.295	3313.344	50	8.	1015	
NE	II	3311.452	3310.499	30	23.	1016		MN	I	3314.408	3313.458	10		148	
CR	II	3311.60	3310.65	35	120.	340		AL	II	3314.421	3313.470	5	8.	1015	
TI	III	3311.857	3310.904	60		227		MN	III	3314.427	3313.473	70		301	
CU	I	3311.935	3310.987	8		672		CR	II	3314.48	3313.53	2		340	
AR	III	3312.20	3311.25	150	1.	1015		SC	II	3314.490	3313.539	0	35.	1015	
ZN	II	3312.204	3311.253	20		154		FE	I	3314.509	3313.555	0		378	
NE	II	3312.2245	3311.2714	90	2.	389		MN	I	3314.511	3313.560	40		148	
CR	I	3312.25	3311.30	4	78.	341		FE	I	3314.6683	3313.7146	3	50.	896	
N	II	3312.369	3311.418		22.	521	P	CR	I	3314.678	3313.728	12	161.	341	
FE	I	3312.4022	3311.4491	3	27.	896		MN	II	3314.75	3313.79	5		328	
MN	I	3312.536	3311.586	6		148		MN	II	3314.871	3313.916	20		328	
F	II	3312.592	3311.639	40		533		V	I	3314.92	3313.97	3		1000	
SC	II	3312.659	3311.708	3	41.	1015		FE	II	3314.947	3313.996	1	1.	1015	
MN	I	3312.844	3311.895	100		148		CR	II	3315.00	3314.05	18	158.	340	
CR	II	3312.86	3311.91	40	51.	340		FE	I	3315.0185	3314.0647	3	736.	896	
CU	II	3312.9810	3312.0277	9		612		MN	I	3315.097	3314.146	10		148	
CR	I	3313.024	3312.074	10	78.	341		V	IV	3315.129	3314.175	2		829	
CU	II	3313.0684	3312.1151	11		612		CR	I	3315.14	3314.19	8	78.	341	
CR	II	3313.13	3312.18	40	51.	340		ZN	III	3315.20	3314.25	0		162	
FE	I	3313.1759	3312.2226	3	450.1	896		CR	I	3315.27	3314.32	2		341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	I	3315.365	3314.415	50		148		CL	II	3317.767	3316.813	250	37.	613	
TI	I	3315.373	3314.422	100	87.	1015		SC	II	3317.990	3317.038	1	41.	1015	
FE	I	3315.3970	3314.4431	3	250.	896		CR	I	3318.01	3317.06	2		341	
TI	I	3315.474	3314.523	80	87.	1015		FE	I	3318.0753	3317.1207	5	139.	896	
CR	II	3315.52	3314.57	35	150.	340		CU	II	3318.0929	3317.1383	75		612	
NE	II	3315.629	3314.675	20	22.	1016		ZN	III	3318.10	3317.15	40		162	
FE	I	3315.6952	3314.7412	40	680.	896		CU	I	3318.169	3317.218	270		672	
AL	II	3315.708	3314.756	5	8.	1015	F	MN	I	3318.240	3317.289	140		148	
CR	I	3315.754	3314.804	10	161.	341		SC	II	3318.645	3317.693	1	41.	1015	
CU	I	3315.78	3314.82	1	672	672		TI	II	3318.976	3318.024	10	7.	1015	
AL	II	3315.835	3314.883	30	8.	1015		NA	II	3318.983	3318.031	40		693	
MN	I	3315.840	3314.889	100	148	148		CR	I	3319.05	3318.10	5		341	
AL	II	3315.953	3314.981	1	8.	1015		N	II	3319.053	3318.098	110	22.	200	
FE	I	3316.118	3315.164	1	618.	378		P	II	3319.263	3318.308	25		496	
CR	I	3316.15	3315.20	4	78.	341		CU	II	3319.270	3318.315	1		612	
TI	I	3316.189	3315.237	20	190.	1015		TI	I	3319.315	3318.362	40	190.	1015	
CR	II	3316.23	3315.28	12	51.	340		CR	I	3319.68	3318.73	2		341	
TI	II	3316.276	3315.324	10	65.	1015		V	IV	3319.742	3318.788	5		829	
MN	I	3316.294	3315.343	4	148	148		FE	II	3319.815	3318.862	0	135.	1015	
CL	II	3316.388	3315.434	430	37.	613		MN	I	3319.824	3318.874	1		148	
AL	II	3316.468	3315.516	2	8.	1015	F	CR	III	3319.87	3318.92	2		490	
AL	II	3316.560	3315.608	10	8.	1015		CR	I	3319.91	3318.96	1		341	
NI	I	3316.615	3315.663	150	22.	1015		V	I	3319.963	3319.010	4		1000	
TI	III	3316.696	3315.742	3	227	227		CU	II	3319.9753	3319.0202	10		612	
CU	II	3316.6982	3315.7440	15	612	612		FE	I	3319.986	3319.031	5		896	M
FE	III	3316.75	3315.80	25	73.	188		TI	II	3320.036	3319.083	1	8.	1015	
V	I	3316.82	3315.87	1	1000	1000		AS	II	3320.164	3319.210	125		425	
MN	I	3316.926	3315.975	7	148	148		FE	I	3320.2074	3319.2522	8	449.	896	
CR	I	3317.180	3316.229	5	341	341		FE	III	3320.3	3319.3			108	F
CU	II	3317.2300	3316.2756	200	612	612		NE	VI	3320.4	3319.4	38		885	M
MN	I	3317.270	3316.319	20		148		CR	III	3320.42	3319.47	2		490	
MN	I	3317.410	3316.459	60		148		CU	I	3320.634	3319.682	125		672	
V	V	3317.425	3316.470	100		929		NE	II	3320.6782	3319.7230	300	10.	389	
CR	I	3317.447	3316.496	25	255.	341		MN	III	3320.71	3319.76	2		301	
CU	II	3317.4660	3316.5116	3	612	612		V	I	3320.72	3319.77	1		1000	
AL	IV	3317.498	3316.546	200		888		MN	I	3320.825	3319.873	3		148	
FE	I	3317.512	3316.558	1	86.	378		CR	III	3320.86	3319.91	2		490	
CR	I	3317.55	3316.60	3		341		CR	I	3320.90	3319.95	3		341	
FE	I	3317.659	3316.704	4		896	M	CU	II	3320.991	3320.039	1		670	
SC	II	3317.74	3316.79	1	35.	1015		AR	I	3321.026	3320.071	25		517	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
V	II	3321.039	3320.084	1		782		FE	I	3323.427	3322.471	10	396.	896	
CL	II	3321.068	3320.112	133	8.	613		CU	II	3323.5922	3322.6362	50		612	
V	I	3321.092	3320.140	3		1000		CR	II	3323.64	3322.69	12	51.	340	
V	III	3321.13	3320.17	1		325		AS	II	3323.666	3322.710	100		425	
NE	II	3321.1525	3320.1971	80	12.	389		MN	II	3323.87	3322.92	30		328	
NI	I	3321.210	3320.257	100	9.	1015		TI	II	3323.890	3322.936	75	7.	1015	
AR	II	3321.3280	3320.3726	20		867		TI	II	3323.93	3322.98	M	44.	1015	
FE	I	3321.370	3320.415	3		896	M	FE	II	3324.020	3323.066	8	92.	1015	
SC	II	3321.375	3320.422	3	35.	1015		B	II	3324.134	3323.178	250		532	
CL	III	3321.52	3320.57	700	6.	38		SE	III	3324.14	3323.18	250		14	
CR	I	3321.52	3320.57	1		341		CR	I	3324.22	3323.27	7		341	
MN	II	3321.53	3320.57	60		328		TI	II	3324.34	3323.39	M	43.	1015	
FE	I	3321.6001	3320.6447	5	190.	896		CR	II	3324.47	3323.52	8	51.	340	
MN	I	3321.644	3320.692	100		148		AR	III	3324.55	3323.59	90		79	
SC	II	3321.662	3320.709	1	41.	1015		B	II	3324.553	3323.597	250		532	
FE	I	3321.7312	3320.7756	5	396.	896		MN	I	3324.586	3323.633	6		148	
NI	I	3321.732	3320.779	30	108.	1015		GE	II	3324.606	3323.644	75		676	
TI	III	3321.898	3320.943	80		227		TI	I	3324.614	3323.660	20	255.	1015	
P	II	3321.96	3321.01	00		431		NE	II	3324.6903	3323.7340	1000	7.	389	
BE	I	3321.967	3321.011	500	1.	333		AR	I	3324.806	3323.850	90		517	
MG	III	3322.02	3321.06	100		2		TI	I	3324.850	3323.896	20	255.	1015	
BE	I	3322.035	3321.079	600	1.	333		CO	II	3324.93	3323.97	M		825	
CU	II	3322.069	3321.114	6		612		S	III	3324.94	3323.99	400	2.	323	
CR	I	3322.141	3321.188	8		341		CR	II	3324.98	3324.03	25	4.	340	
NI	I	3322.195	3321.242	10	92.	1015		CR	I	3325.01	3324.06	20		341	
CR	II	3322.25	3321.30	5		340		CR	II	3325.04	3324.09	20	120.	340	
F	II	3322.26	3321.30	10		538		MN	II	3325.073	3324.116	100		328	
BE	I	3322.296	3321.340	750	1.	333		F	II	3325.08	3324.12	4		538	
FE	II	3322.443	3321.491	1	194.	645		FE	I	3325.140	3324.184	5		896	M
CU	II	3322.5083	3321.5526	25		612		V	I	3325.161	3324.208	1		1000	
TI	I	3322.541	3321.588	80	87.	1015		CR	II	3325.29	3324.34	50	80.	340	
V	I	3322.637	3321.684	5		1000		FE	I	3325.3259	3324.3695	15	617.	896	
TI	II	3322.654	3321.700	25	65.	1015		V	I	3325.347	3324.393	3		1000	
CU	II	3322.6725	3321.7168	5		612		FE	I	3325.441	3324.485	4		896	M
MN	II	3322.955	3321.999	40		328		V	I	3325.442	3324.489	1		1000	
MN	III	3322.987	3322.031	50		301		FE	I	3325.4934	3324.5369	12	191.	896	
MN	I	3323.247	3322.295	6		148		N	II	3325.529	3324.573	110	22.	200	
NI	I	3323.264	3322.310	75	39.	1015		TI	I	3325.56	3324.61	10	60.	1015	
CL	II	3323.322	3322.366	9		613		FE	III	3325.67	3324.72	25	96.	188	
AR	I	3323.386	3322.430	25		517		TI	I	3325.708	3324.754	40	190.	1015	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	II	3325.7860	3324.8295	15		612		CR	I	3328.21	3327.26	3		341	
FE	II	3325.792	3324.838	1	194.	645		MN	II	3328.23	3327.27	20		328	
S	III	3325.81	3324.85	600	2.	323		CA	XII	3328.3	3327.3			1003	F
CR	I	3325.81	3324.86	1		341		AR	III	3328.30	3327.34	40		79	
FE	II	3325.966	3325.012	1	93.	1015		NI	I	3328.347	3327.392	20	90.	1015	
CU	II	3325.9800	3325.0234	9		612		FE	I	3328.4525	3327.4953	5	190.	896	
TI	I	3326.110	3325.155	30	190.	1015		FE	II	3328.625	3327.667	4	64.	896	
TI	I	3326.184	3325.229	30	190.	1015		NA	II	3328.639	3327.684	40		693	
BR	II	3326.236	3325.282	10		606		V	III	3328.819	3327.863	5		325	
BR	I	3326.264	3325.307	10		757		CU	II	3328.8702	3327.9129	2		612	
TI	I	3326.320	3325.365	10	255.	1015		FE	I	3328.9089	3327.9516	5	86.	896	
FE	I	3326.4214	3325.4647	6	191.	896		V	I	3328.937	3327.983	2		1000	
CU	II	3326.585	3325.628	2		612		MN	II	3328.960	3328.003	140		328	
CR	I	3326.618	3325.664	4		341		FE	I	3329.245	3328.287	4		896	M
MN	III	3326.756	3325.799	1		301		TI	I	3329.281	3328.326	10	255.	1015	
CU	I	3326.765	3325.812	3		672		CR	II	3329.29	3328.34	25	4.	340	
CU	II	3326.7755	3325.8187	15		612		V	I	3329.358	3328.404	2		1000	
MN	II	3326.79	3325.83	10		328		MN	II	3329.368	3328.411	100		328	
CU	II	3326.8804	3325.9236	5		612		V	IV	3329.451	3328.527	30		829	
MN	II	3327.025	3326.069	30		328		CR	I	3329.59	3328.64	2		341	
CR	X	3327.1	3326.1			726	F	FE	I	3329.653	3328.696	5		896	M
O	III	3327.11	3326.16	1	28.	1015		NI	I	3329.670	3328.714	25	20.	1015	
MN	II	3327.123	3326.166	10		328		N	II	3329.687	3328.730	220	22.	200	
CU	I	3327.281	3326.328	3		672		CR	I	3329.762	3328.807	15	160.	341	
V	I	3327.33	3326.38	1		1000		FE	I	3329.8233	3328.8658	25	617.	896	
MN	II	3327.38	3326.42	30		328		CL	II	3329.917	3328.959	200		613	
FE	I	3327.539	3326.582	4		896	M	FE	II	3330.002	3329.045	4		896	
CR	I	3327.542	3326.588	30		341		CR	I	3330.012	3329.058	40	182.	341	
TI	I	3327.594	3326.639	20	87.	1015		CL	III	3330.02	3329.06	800	2.	38	
NI	I	3327.625	3326.670	20	108.	1015		CL	II	3330.061	3329.103	340	37.	613	
TI	II	3327.63	3326.68	M	56.	1015		NE	II	3330.1153	3329.1577	100	12.	389	
SC	II	3327.69	3326.74	M	41.	1015	P	CR	II	3330.40	3329.45	4	150.	340	
TI	II	3327.717	3326.762	20	7.	1015		TI	II	3330.411	3329.455	70	7.	1015	
CU	II	3327.7691	3326.8120	2		612		CU	II	3330.448	3329.490	2		612	
CO	VI	3328.0	3327.0			108	F	FE	I	3330.4806	3329.5229	5	542.1	896	
CR	I	3328.05	3327.10	2		341		CU	I	3330.590	3329.636	150		672	
V	I	3328.09	3327.14	00		1000		F	II	3330.620	3329.662	1		538	
NE	II	3328.1093	3327.1522	150	2.	389		N	II	3330.662	3329.704	110	1.0	200	
CR	I	3328.18	3327.23	3		341		V	I	3330.812	3329.858	12	55.	1000	
CR	III	3328.19	3327.23	1		490		FE	III	3330.84	3329.89	120	18.	168	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MG	I	3330.877	3329.919	115	4.	1017		CR	II	3334.08	3333.12	2		340	
FE	I	3330.927	3329.970	1		378		SI	II	3334.098	3333.139	300	6.	678	
FE	I	3331.164	3330.206	1	378.	378		FE	III	3334.22	3333.27	25	18.	188	
N	II	3331.272	3330.314	110	22.	200		TI	III	3334.416	3333.457	15		227	
FE	I	3331.273	3330.316	1		378		CR	I	3334.46	3333.50	4		341	
O	III	3331.36	3330.40	40	22.	168		SC	I	3334.49	3333.53	1		1030	M
V	III	3331.46	3330.49	0		325		V	I	3334.529	3333.573	2		1000	
CR	I	3331.551	3330.596	7		341		CR	I	3334.56	3333.61	12		341	
MN	I	3331.618	3330.663	100		148		CL	II	3334.573	3333.614	265	8.	613	
NE	II	3331.6930	3330.7350	60		389		TI	I	3334.869	3333.912	20	25.	1015	
MN	II	3331.73	3330.75	450		328		FE	III	3334.9	3333.9			108	F
CR	II	3331.94	3330.98	1	53.	340		V	IV	3334.945	3333.986	15		829	
SC	II	3332.05	3331.07	3	35.	1015		V	III	3334.949	3333.990	8		325	
TI	III	3332.063	3331.105	60		227		V	I	3335.10	3334.14	00		1000	
CR	I	3332.14	3331.19	1		341		FE	I	3335.100	3334.141	6		896	M
NI	I	3332.22	3331.26	K	107.	1015		FE	I	3335.1777	3334.2188	8	190.	896	
N	II	3332.268	3331.310	160	22.	200		CU	II	3335.216	3334.257	3		612	
V	III	3332.27	3331.31	0		325		FE	I	3335.2323	3334.2734	5	617.	896	
MN	II	3332.479	3331.521	140		328		TI	I	3335.31	3334.35	10	190.	1015	
FE	III	3332.57	3331.62	60	73.	188		CU	II	3335.438	3334.479	1		612	
FE	I	3332.5700	3331.6117	6	191.	896		MN	I	3335.513	3334.557	8		148	
FE	I	3332.7343	3331.7760	5	144.	896		P	II	3335.57	3334.61	0		431	
TI	II	3333.068	3332.111	30	65.	1015		CR	I	3335.64	3334.68	10		341	
CR	II	3333.09	3332.13	2	91.	340		CR	I	3335.74	3334.78	5		341	
MG	I	3333.104	3332.146	145	4.	1017		V	IV	3335.75	3334.79	60		829	
NI	I	3333.137	3332.180	30		1015	N	NE	II	3335.7952	3334.8361	200	2.	389	
TI	III	3333.210	3332.252	80		227		ZN	III	3335.81	3334.85	100		162	
MN	II	3333.233	3332.274	30		328		CR	I	3335.877	3334.922	12	160.	341	
CU	II	3333.2347	3332.2762	2		612		FE	III	3335.9	3334.9			108	F
MN	II	3333.320	3332.361	40		328		MN	I	3335.995	3335.039	3		148	
CL	II	3333.359	3332.401	150	8.	613		TI	II	3336.149	3335.192	40	7.	1015	
V	I	3333.404	3332.449	00		1000		CU	I	3336.171	3335.215	200		672	
CU	II	3333.438	3332.479	2		612		CR	II	3336.23	3335.27	40	80.	340	
O	III	3333.45	3332.49	4	28.	1015		FE	I	3336.3512	3335.3920	4	246.	896	
CR	I	3333.50	3332.54	3		341		CU	II	3336.3666	3335.4074	7		612	
CU	II	3333.519	3332.560	1		612		CR	II	3336.41	3335.45	30	92.	340	
CR	I	3333.84	3332.88	25	182.	341		FE	I	3336.4689	3335.5097	12	49.	896	
AL	IV	3333.919	3332.962	300		888		NI	I	3336.55	3335.59	10		1015	N
O	III	3333.96	3333.00	40	22.	1015		FE	I	3336.674	3335.714	5	307.	896	
MN	II	3334.075	3333.115	40		328		CR	I	3336.727	3335.771	6		341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
FE	I	3336.7274	3335.7680	6	379.	896		FE	II	3339.480	3338.522	3	76.	1015	
MG	III	3336.86	3335.91	230		2		FE	I	3339.5809	3338.6208	5	396.	896	
CR	II	3336.89	3335.93	4	119.	340		CU	II	3339.6076	3338.6475	150		612	
NE	II	3337.0519	3336.0925	90	46.	389		AS	II	3339.626	3338.666	2		425	
AR	III	3337.09	3336.13	250	3.	1015		CR	I	3339.634	3338.677	7		341	
CL	III	3337.12	3336.16	500	6.	38		FE	III	3339.68	3338.72	7		1015	N
CR	II	3337.12	3336.16	2	14.	340		NI	I	3339.716	3338.758	15	54.	1015	
MG	III	3337.15	3336.19	40		2		CR	II	3339.85	3338.89	10		340	
V	I	3337.168	3336.212	1		1000		CU	II	3339.8961	3338.9360	65		612	
FE	I	3337.2162	3336.2567	5	618.	896		NI	I	3340.008	3339.050	20	104.	1015	
CR	II	3337.28	3336.32	40	4.	340		CU	II	3340.0452	3339.0850	65		612	
V	I	3337.306	3336.350	2		1000		MG	IV	3340.12	3339.16	100		861	
MN	II	3337.355	3336.394	320		328		FE	I	3340.1548	3339.1946	5	190.	896	
MG	I	3337.634	3336.674	160	4.	1017		FE	III	3340.32	3339.36	250	7.	188	
CR	I	3337.68	3336.72	1		341		TI	I	3340.50	3339.54	10	178.	1015	
MN	II	3337.718	3336.757	100		328		FE	I	3340.5380	3339.5777	4	502.	896	
P	III	3337.721	3336.761	4		936		MN	II	3340.55	3339.59	10		328	
O	III	3337.74	3336.78	25	28.	1015		CR	II	3340.77	3339.81	50	4.	340	
V	I	3337.75	3336.79	2		1000		SI	II	3340.779	3339.819	500	6.	678	
ZN	III	3337.79	3336.83	15		162		CR	II	3340.86	3339.90	20	92.	340	
CR	I	3337.812	3336.855	5		341		V	I	3341.13	3340.17	1		1000	
CO	VI	3337.9	3336.9			108	F	TI	III	3341.163	3340.202	80		227	
CR	I	3337.94	3336.98	18	255.	341		TI	II	3341.303	3340.344	35	7.	1015	
TI	II	3337.956	3336.998	43	43.	1015		MN	II	3341.36	3340.40	10		328	
NI	I	3337.972	3337.014	20	17.	1015		CL	III	3341.38	3340.42	900	2.	38	
CL	II	3338.148	3337.188	12	8.	613		FE	I	3341.5248	3340.5643	8	139.	896	
CR	I	3338.176	3337.219	5		341		CR	I	3341.598	3340.641	10		341	
NI	I	3338.32	3337.36		122.	1015		O	III	3341.70	3340.74	90	3.	1015	
MN	II	3338.348	3337.387	280		328		TI	I	3341.73	3340.77	10	190.	1015	
TI	I	3338.36	3337.40	10	190.	1015		CU	II	3341.7914	3340.8308	10		612	
CU	II	3338.5548	3337.5950	40		612		FE	III	3341.8	3340.8			108	F
FE	I	3338.6240	3337.6642	12	304.	896		V	III	3342.108	3341.145	50		325	
CU	II	3338.677	3337.718	5		612		MN	II	3342.406	3341.445	170		328	
MN	II	3338.8	3337.8			909	F	CR	I	3342.411	3341.454	7		341	
CU	I	3338.801	3337.845	15		672		CO	II	3342.42	3341.46		M	825	
CR	I	3338.81	3337.85	1		341		CO	VI	3342.5	3341.5			108	F
TI	II	3338.81	3337.85	2	55.	1015		TI	I	3342.513	3341.554	10	60.	1015	
FE	I	3338.875	3337.915	1		378		TI	I	3342.513	3341.554	10	178.	1015	
CU	II	3338.9967	3338.0368	125		612		AR	II	3342.7017	3341.7409	40		867	
BR	II	3339.453	3338.495	0		606		CU	II	3342.7218	3341.7610	8		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CL	II	3342.77	3341.81	11		613		FE	I	3344.721	3343.760	4		896	M
MN	II	3342.78	3341.82	80		328		TI	II	3344.730	3343.770	10	7.	1015	
TI	II	3342.834	3341.875	100	16.	1015		CO	II	3344.93	3343.97	M		825	
TI	I	3342.836	3341.875	500	24.	1007		FE	I	3345.040	3344.078	0	450.	378	
FE	I	3342.8669	3341.9060	15	303.	896		O	III	3345.22	3344.26	10		1015	
BR	II	3342.913	3341.954	10		606		NE	II	3345.3577	3344.3961	150	2.	389	
CR	II	3342.93	3341.97	5	119.	340		AL	IV	3345.42	3344.46	400		888	
TI	II	3342.932	3341.971	J		1007		CR	I	3345.465	3344.507	10	160.	341	
CR	I	3342.982	3342.025	5	160.	341		CA	I	3345.475	3344.513	40	11.	1018	
FE	I	3343.101	3342.140	4		896	M	TI	I	3345.58	3344.62	J	25.	1015	
TI	I	3343.110	3342.151	60	23.	1015		TI	I	3345.590	3344.630	J		1015	
FE	I	3343.1752	3342.2142	6	137.	896		AR	III	3345.68	3344.72	200	3.	1015	
CR	I	3343.191	3342.233	12		341		MN	II	3345.7	3344.7			909	F
V	I	3343.24	3342.28	2		1000		MG	III	3345.86	3344.90	7		2	
FE	I	3343.2536	3342.2926	6	378.	896		TI	I	3345.891	3344.931	10	178.	1015	
MN	II	3343.291	3342.330	30		328		FE	I	3345.900	3344.938	6		896	M
CU	I	3343.411	3342.454	5		672		V	I	3345.97	3345.01	00		1000	
CR	I	3343.415	3342.457	5		341		ZN	I	3345.977	3345.015	300	4.	314	
CR	II	3343.53	3342.57	50	4.	340		CR	I	3346.102	3345.144	9	218.	341	
MG	III	3343.54	3342.58	200		2		CR	I	3346.32	3345.36	8	218.	341	
TI	I	3343.667	3342.707	20	25.	1015		BE	I	3346.397	3345.430	15		330	
N	III	3343.67	3342.71	25	7.	521		NE	II	3346.4156	3345.4538	300	10.	389	
CU	I	3343.73	3342.77	5		672		ZN	I	3346.532	3345.570	200	4.	314	
CU	II	3343.7615	3342.8004	10		612		FE	I	3346.639	3345.679	3	141.	1015	
CL	III	3343.9	3342.9			108	F	KR	I	3346.6565	3345.6946	4		1012	
CU	II	3343.9252	3342.9640	25		612		NE	V	3346.79	3345.83			108	F
MN	II	3343.97	3343.01	25		328		NE	II	3346.7908	3345.8289	150	10.	389	
S		3344.	3343.			107	N	ZN	I	3346.898	3345.936	60	4.	314	
CU	II	3344.175	3343.214	4		612		CR	I	3346.967	3346.008	40	112.	341	
CR	I	3344.179	3343.221	12	159.	341		CR	I	3347.11	3346.15	7		341	
FE	I	3344.1974	3343.2361	4	88.	896		TI	III	3347.144	3346.182	130		227	
SC	II	3344.23	3343.27	4	35.	1015		F	II	3347.388	3346.426	10		538	
CR	I	3344.302	3343.344	20	159.	341		CR	I	3347.68	3346.72	30	112.	341	
TI	I	3344.339	3343.379	J	178.	1015		TI	II	3347.685	3346.724	15	7.	1015	
FE	I	3344.469	3343.508	4		896	M	CR	I	3347.75	3346.79	10	112.	341	
BR	II	3344.478	3343.518	1		606		TI	III	3347.78	3346.82	130		227	
FE	I	3344.638	3343.678	3	449.	1015		TI	II	3347.87	3346.91	M	43.	1015	
CU	II	3344.6827	3343.7214	150		612		FE	I	3347.8968	3346.9346	8	87.	896	
CR	I	3344.71	3343.75	5		341		CA	II	3347.95	3346.99	250	9.	1015	
CU	II	3344.7128	3343.7515	150		612		BR	II	3347.953	3346.992	180	9.	488	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
BR	II	3348.060	3347.100	100		606		V	III	3351.174	3350.211	60		325	
V	III	3348.09	3347.13	10		325		FE	I	3351.2194	3350.2564	4	191.	896	
CR	II	3348.10	3347.14	5		340		CR	I	3351.26	3350.30	4	159.	341	
CU	II	3348.189	3347.227	2		612		CA	I	3351.320	3350.357	33	11.	1018	
V	III	3348.339	3347.377	10		325		TI	I	3351.510	3350.548	20	178.	1015	
CR	I	3348.426	3347.467	7		341		TI	II	3351.510	3350.548	1	43.	1015	
FE	I	3348.4605	3347.4982	4	449.	896		CR	III	3351.59	3350.63	10		490	
CU	II	3348.6377	3347.6754	10		612		O	III	3351.64	3350.68	25	22.	1015	
FE	III	3348.66	3347.70	150	18.	188		CR	I	3351.68	3350.72	1		341	
P	IV	3348.698	3347.736	650	1.	937		AL	III	3351.848	3350.885	285		826	
CR	II	3348.79	3347.83	40	4.	340		V	III	3351.880	3350.917	30		325	
FE	I	3348.8875	3347.9251	8	138.	896		AR	II	3351.8875	3350.9243	160		867	
BR	I	3348.951	3347.990	4		1020		O	III	3351.95	3350.99	40.	22.	1015	
O	III	3349.01	3348.05	10	28.	1015		SC	I	3352.16	3351.20	1		1028	
O	IV	3349.04	3348.08	350	4.	86		AL	II	3352.418	3351.456	50	26.	1015	
O	I	3349.140	3348.177	285	3.0	1009		CR	I	3352.45	3351.49	3		341	
O	I	3349.196	3348.233	220	3.0	1009		FE	I	3352.4852	3351.5219	6	89.	896	
MN	II	3349.21	3348.24	40		328		CR	I	3352.550	3351.591	25	160.	341	
O	I	3349.237	3348.273	160	3.0	1009		TI	II	3352.63	3351.67	1	124.	1015	
F	II	3349.362	3348.399	25		538		FE	I	3352.7067	3351.7433	8	304.	896	
AL	III	3349.480	3348.517	360		826		NE	I	3352.7126	3351.7492	5		389	
TI	I	3349.496	3348.535	50	25.	1015		CR	I	3352.926	3351.966	40	5.	341	
BR	I	3349.528	3348.566	15		757		CU	II	3352.9959	3352.0324	90		612	
V	III	3349.601	3348.639	80		325		SC	II	3353.010	3352.048	3	4.	1015	
CU	II	3349.7581	3348.7954	6		612		TI	II	3353.033	3352.071	5	54.	1015	
TI	II	3349.805	3348.844	10	7.	1015		TI	I	3353.39	3352.43	3	169.	1015	
CU	II	3349.8451	3348.8824	8		612		CR	II	3353.52	3352.56	3		340	
TI	II	3349.996	3349.035	75	16.	1015		CR	I	3353.66	3352.70	1		341	
CR	I	3350.027	3349.067	20		341		CO	II	3353.76	3352.79	30	2.	825	
O	IV	3350.07	3349.11	400	4.	86		FE	I	3353.8848	3352.9211	4	190.	896	
SC	I	3350.18	3349.22	1		1028		TI	I	3353.899	3352.937	60	25.	1015	
CU	I	3350.239	3349.279	45		672		CR	I	3353.983	3353.022	15	255.	341	
CR	I	3350.281	3349.322	20	159.	341		CR	II	3354.08	3353.12	20	4.	340	
CR	II	3350.30	3349.34	6	4.	340		FE	I	3354.2245	3353.2607	3	190.	896	
TI	II	3350.360	3349.399	125	1.	1015		CL	III	3354.29	3353.33			108	F
CU	II	3350.4195	3349.4566	60		612		CL	II	3354.312	3353.349	500	4.	613	
MN	II	3350.47	3349.50	100		328		BR	II	3354.352	3353.389	0		606	
CR	II	3350.61	3349.65	3	14.	340		CU	I	3354.426	3353.466	10		672	
FE	I	3350.6901	3349.7273	4	377.	896		NE	II	3354.5306	3353.5667	70	23.	389	
CA	I	3351.172	3350.209	50	11.	1018		CR	I	3354.586	3353.626	7		341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
SE	II	3354.64	3353.67	100		468		NE	II	3358.7840	3357.8190	120	12.	389	
MG	III	3354.69	3353.73	80		2		FE	I	3358.788	3357.823	0	448.	378	
N	III	3354.92	3353.96	40	5.	521		F	III	3358.795	3357.830	110		537	
FE	I	3355.0238	3354.0598	6	378.	896		CR	I	3358.82	3357.86	2	160.	341	
CU	II	3355.0311	3354.0671	5		612		TI	III	3358.887	3357.922	60		227	
N	III	3355.23	3354.27	40	5.	521		CU	II	3358.9017	3357.9368	8		612	
O	IV	3355.23	3354.27	250	8.	86		FE	II	3358.929	3357.965	0	117.	1015	
BR	II	3355.246	3354.284	0		606		TI	III	3359.066	3358.101	5		227	
F	III	3355.329	3354.365	150		537		FE	II	3359.216	3358.252	3	77.	1015	
CU	I	3355.434	3354.474	60		672		CU	I	3359.23	3358.27	2		672	
TI	II	3355.50	3354.54	M	64.	1015		TI	I	3359.235	3358.271	100	23.	1015	
HE	I	3355.514	3354.550	10		497		F	III	3359.323	3358.358	250		537	
TI	I	3355.595	3354.631	600	24.	1007		CU	II	3359.312	3358.407	2		612	
CP	I	3355.61	3354.65	1		341		MN	II	3359.376	3358.411	100		328	
TI	III	3355.67	3354.71	230		227		AR	III	3359.45	3358.49	150	3.	1015	
FE	III	3355.75	3354.79	10		188		CR	II	3359.45	3358.49	75	4.	340	
NE	II	3355.9817	3355.0175	200	2.	389		TI	I	3359.52	3358.56	J	169.	1015	
FE	I	3356.1918	3355.2275	200	617.	896		CO	II	3359.55	3358.58	10	2.	825	
CU	II	3356.2749	3355.3106	2		612		CU	III	3359.696	3358.730	3		724	
N	III	3356.45	3355.49	40	7.	521		CU	I	3359.70	3358.74	2		672	
FE	I	3356.4817	3355.5173	80	25.	896		CU	II	3359.744	3358.779	1		612	
FE	III	3356.6	3355.6			108		N	III	3359.75	3358.79	10	5.	521	
CU	II	3356.610	3355.649	2		670		CU	II	3359.8475	3358.8822	2		612	
CR	II	3356.85	3355.89	2		340		FE	I	3359.876	3358.911	2		378	
O	III	3356.88	3355.92	25	28.	1015		CU	II	3360.0239	3359.0586	15		612	
F	III	3356.946	3355.982	200		537		NI	I	3360.070	3359.106	40	108.	1015	
MN	II	3357.064	3356.100	140		328		CR	I	3360.137	3359.176	6	159.	341	
TI	I	3357.159	3356.196	20	178.	1015		AR	I	3360.447	3359.482	40		517	
NE	II	3357.2729	3356.3084	90		389		FE	I	3360.4523	3359.4870	4	25.	896	
FE	I	3357.2841	3356.3196	5	25.	896		MN	II	3360.581	3359.614	10		328	
V	I	3357.319	3356.358	10	54.	1000		SC	II	3360.643	3359.679	10	4.	1015	
CR	I	3357.34	3356.38	3		341		CU	II	3360.6871	3359.7216	17		612	
FE	I	3357.3657	3356.4011	5	137.	896		FE	I	3360.7731	3359.8077	4	617.	896	
FE	III	3357.6	3356.6			108		FE	II	3361.068	3360.103	3	105.	1015	
FE	I	3357.649	3356.685	4		896		CR	I	3361.107	3360.145	6		341	
CR	I	3357.72	3356.76	1		341		O	II	3361.11	3360.15	0	52.	1015	
CU	II	3357.8524	3356.8876	1		612		TI	II	3361.12	3360.16	M	54.	1015	
CR	II	3358.35	3357.39	40	79.	340		SC	I	3361.22	3360.26	1		1028	
CU	II	3358.4370	3357.4721	10		612		FE	II	3361.237	3360.272	4		896	
CR	II	3358.68	3357.72	1	91.	340		NE	II	3361.2372	3360.2716	90	46.	389	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	II	3361.26	3360.30	100	21.	340		FE	II	3363.729	3362.764	0	78.	1015	
CU	II	3361.2841	3360.3185	3		612		NI	I	3363.771	3362.806	30	23.	1015	
P	III	3361.408	3360.442	40		936		NE	II	3363.906	3362.939	90	12.	1016	
FE	I	3361.426	3360.461	5		896	M	MN	II	3363.986	3363.019	170		328	
NE	II	3361.560	3360.595	200	2.	1016		FE	I	3364.371	3363.405	4		896	M
P	IV	3361.684	3360.718	60		937		AR	I	3364.441	3363.475	60		517	
FE	I	3361.8929	3360.9272	4	142.	896		SC	II	3364.467	3363.501	1	38.	1015	
N	III	3361.91	3360.95	25	5.	521		V	V	3364.484	3363.517	60		929	
TI	I	3361.955	3360.990	100	24.	1015		V	I	3364.515	3363.551	4		1000	
CU	II	3361.9599	3360.9941	3		612		NI	I	3364.579	3363.613	20	105.	1015	
TI	II	3362.03	3361.07	M	64.	1015		CR	II	3364.66	3363.70	12	3.	340	
TI	II	3362.178	3361.213	125	1.	1015		FE	I	3364.7770	3363.8105	4	307.	896	
NI	I	3362.206	3361.241	25	107.	1015		CU	II	3364.7952	3363.8287	5		612	
TI	I	3362.228	3361.263	400	23.	1015		O	III	3364.80	3363.83	4	11.	1015	
SC	II	3362.235	3361.270	10	4.	1015		TI	I	3365.07	3364.10	J	169.	1015	
MG	III	3362.37	3361.41	230		2		FE	II	3365.231	3364.264	4	5.	896	
TI	I	3362.46	3361.50	10	178.	1015		TI	II	3365.27	3364.30	M	43.	1015	
NI	I	3362.521	3361.556	100	19.	1015		FE	I	3365.368	3364.402	1		378	
CU	II	3362.684	3361.718	2		612		P	IV	3365.434	3364.467	570	1.	937	
AR	II	3362.7108	3361.7448	50		867		NI	I	3365.557	3364.591	25	107.	1015	
CR	II	3362.73	3361.77	30	21.	340		FE	I	3365.5993	3364.6326	4	245.	896	
TI	I	3362.800	3361.835	100	25.	1015		CR	II	3365.63	3364.67	7		340	
N	III	3362.87	3361.90	10		246	N	TI	II	3365.93	3364.86	1		601	
CA	I	3362.884	3361.918	60	11.	1018		SC	I	3365.84	3364.87	1		1030	M
SC	II	3362.900	3361.935	12	4.	1015		CR	I	3365.99	3365.03	1		341	
FE	I	3362.9149	3361.9489	10	377.	896		CU	I	3366.305	3365.342	7		672	
CU	I	3363.09	3362.12	2		672		FE	II	3366.379	3365.413	1	78.	1015	
V	I	3363.1	3362.1	1		1000		CU	II	3366.4083	3365.4414	10		612	
CA	I	3363.101	3362.135	33	11.	1018		CR	I	3366.48	3365.52	10		341	
NE	II	3363.127	3362.161	120		1016		AR	II	3366.4876	3365.5207	80		867	
NA	IV	3363.17	3362.20			108	F	V	I	3366.519	3365.556	10	54.	1000	
CR	I	3363.178	3362.216	25	54.	341		FE	II	3366.603	3365.640	0	194.	645	
FE	I	3363.233	3362.267	4		896	M	CU	II	3366.6144	3365.6475	200		612	
CA	I	3363.244	3362.278	7	11.	1018		NI	I	3366.734	3365.768	75	38.	1015	
MN	II	3363.377	3362.412	40		328		N	III	3366.78	3365.81	40	5.	521	
O	IV	3363.52	3362.56	F	8.	86		MN	II	3366.99	3366.03	30		328	
TI	II	3363.618	3362.653	1	64.	1015		MN	II	3367.083	3366.116	80		328	
FE	V	3363.64	3362.67			229	F	BR	II	3367.113	3366.147	50		606	
CR	I	3363.66	3362.70	10	54.	341		NI	I	3367.134	3366.168	100	8.	1015	
NE	II	3363.6737	3362.7075	100		389		TI	II	3367.142	3366.176	8	54.	1015	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
P	IV	3367.143	3366.176	60		937		SC	II	3369.913	3368.946	15	4.	1015	
TI	I	3367.143	3366.176	50	178.	1015		FE	I	3369.9390	3368.9712	5	376.	896	
FE	III	3367.2	3366.2			108	F	V	I	3370.0	3369.0	1		1000	
CU	II	3367.2367	3366.2696	200		612		CR	II	3370.01	3369.05	18	68.	340	
CR	I	3367.24	3366.28	1	159.	341		TI	I	3370.021	3369.054	10	25.	1015	
SC	II	3367.43	3366.46	1	38.	1015		FE	I	3370.1074	3369.1395	5	191.	896	
CU	II	3367.5290	3366.5618	150		612		TI	II	3370.179	3369.212	2	64.	1015	
AR	II	3367.5473	3366.5801	90		867		FE	II	3370.314	3369.349	3	76.	645	
FE	I	3367.7532	3366.7860	30	302.	896		O	III	3370.37	3369.40	0	11.	1015	
NI	I	3367.773	3366.807	50	108.	1015		CO	II	3370.41	3369.44	M		825	
AS	II	3367.7939	3366.8267	125		425		S	III	3370.43	3369.47	300	2.	323	
CU	II	3367.823	3366.856	2		612		FE	I	3370.5142	3369.5463	60	304.	896	
FE	I	3367.8520	3366.8647	30	87.	896		GE	III	3370.53	3369.57	5		406	
V	I	3367.838	3366.875	4		1000		NI	I	3370.540	3369.573	400	6.	1015	
O	II	3367.92	3366.95	0	52.	1015	P	GE	II	3370.587	3369.620	20		676	
FE	II	3367.949	3366.981	5	177.	896		TI	II	3370.64	3369.67	0	124.	1015	
NE	II	3367.949	3366.982	30		1016		NE	I	3370.7760	3369.8080	70	2.	389	
FE	III	3367.99	3367.02	6		1015	N	NE	I	3370.8758	3369.9078	200	2.	389	
V	I	3368.00	3367.04	1		1000		FE	I	3371.049	3370.081	5		896	M
FE	I	3368.1238	3367.1564	5	142.	896		CU	II	3371.1189	3370.1507	15		612	
S	III	3368.15	3367.18	400	2.	323		V	I	3371.161	3370.196	1		1000	
NE	II	3368.1839	3367.2166	120	12.	389		CR	I	3371.18	3370.22	8		341	
NI	I	3368.26	3367.29		96.	1015		O	II	3371.20	3370.23	0		1015	
FE	III	3368.3	3367.3			108	F	FE	I	3371.223	3370.254	0	542.	378	
N	III	3368.31	3367.34	120	5.	521		S	III	3371.34	3370.37	400	2.	323	
CR	II	3368.38	3367.42	12	79.	340		TI	I	3371.401	3370.433	400	23.	1007	
CO	VI	3368.5	3367.5			108	F	CU	II	3371.4220	3370.4538	450		612	
CR	I	3368.50	3367.54	10	54.	341		FE	I	3371.528	3370.560	3		896	M
BE	I	3368.600	3367.633	40		333		FE	I	3371.581	3370.613	3		896	M
F	III	3368.614	3367.647	110		537		TI	III	3371.593	3370.625	80		227	
MN	II	3368.69	3367.72	10		328		CU	II	3371.6254	3370.6572	25		612	
CA	III	3368.754	3367.786	360		64		FE	I	3371.7512	3370.7829	110	304.	896	
NI	I	3368.859	3367.892	40	20.	1015		CU	II	3371.7528	3370.7845	100		612	
CR	II	3369.00	3368.04	150	4.	340		CO	II	3371.91	3370.94	50	2.	825	
FE	I	3369.140	3368.172	5	678.	896		CR	I	3371.94	3370.98			341	
CR	I	3369.41	3368.45	2		341		CR	I	3372.04	3371.07	6		341	
FE	II	3369.414	3368.447	00	134.	1015		V	V	3372.058	3371.089	10		929	
FE	II	3369.593	3368.626	0	177.	1015		V	I	3372.082	3371.118	3		1000	
CR	II	3369.68	3368.72	10	91.	340		P	IV	3372.090	3371.122	400	1.	937	
FE	V	3369.84	3368.87			229	F	CR	I	3372.30	3371.34	3		341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
CU	II	3372.3759	3371.4075	100.		612		FE	V	3375.30	3374.33			229	F
TI	I	3372.422	3371.453	800	24.	1007		TI	II	3375.321	3374.352	8	54.	1015	
FE	I	3372.454	3371.485	4		896	M	CR	I	3375.371	3374.406	4		341	
BR	II	3372.561	3371.593	10		606		CU	II	3375.4114	3374.4422	3		612	
TI	III	3372.591	3371.623	130		227		FE	I	3375.412	3374.443	3		896	M
CU	II	3372.6700	3371.7015	15		612		O	II	3375.44	3374.47	0	96.	1015	P
O	II	3372.71	3371.74	10	52.	1015	P	BR	II	3375.524	3374.555	10		606	
NE	II	3372.7655	3371.7969	100	17.	389		CR	I	3375.55	3374.58	12		341	
TI	III	3372.940	3371.971	15		227		NI	I	3375.611	3374.642	75	106.	1015	
NI	I	3372.961	3371.993	75	7.	1015		CR	I	3375.71	3374.74	3		341	
HE	I	3373.	3372.	3		126		V	III	3375.753	3374.784	1		325	
FE	I	3373.0409	3372.0723	6	83.	896		CR	I	3375.892	3374.927	10	181.	341	
CR	II	3373.09	3372.12	15	91.	340		GA	II	3375.91	3374.94	85		652	
SC	II	3373.119	3372.151	20	4.	1015		CR	II	3375.92	3374.95	4	4.	340	
TI	II	3373.176	3372.208	10	16.	1015		CU	II	3375.9208	3374.9515	300		612	
F	III	3373.194	3372.225	110		537		CR	II	3375.96	3374.99	3	149.	340	
CR	I	3373.28	3372.31	2		341		MN	II	3375.983	3374.919	30		328	
FE	I	3373.3118	3372.3432	4	447.	896		CR	I	3376.05	3375.08	2		341	
CA	III	3373.639	3372.671	580	1.	64		CU	I	3376.14	3375.18	8		672	
F	II	3373.688	3372.719	10		538		CU	II	3376.1915	3375.2221	25		612	
P	III	3373.726	3372.757	90		936		CR	I	3376.29	3375.32	1		341	
V	I	3373.76	3372.80	00		1000		O	IV	3376.37	3375.40	300	8.	86	
TI	II	3373.769	3372.800	100	1.	1015		NI	I	3376.530	3375.561	10	108.	1015	
FE	I	3373.825	3372.856	4		896	M	CR	I	3376.559	3375.593	5		341	
CR	II	3374.05	3373.08	3		340		NE	I	3376.6185	3375.6490	10		389	
NA	II	3374.23	3373.26	0		40		CU	I	3376.638	3375.672	3		672	
F	II	3374.448	3373.479	120		538		FE	I	3376.693	3375.724	1		378	
SC	II	3374.54	3373.57	1	38.	1015		O	II	3376.74	3375.77	1	52.	1015	
CU	II	3374.5603	3373.5914	175		612		GA	II	3376.92	3375.95	1		652	
ZN	III	3374.71	3373.74	1		162		TI	III	3376.976	3376.007	3		227	
AR	II	3374.8137	3373.8447	30		867		V	I	3377.025	3376.059	8		1000	
FE	I	3374.8387	3373.8696	4	303.	896		CR	I	3377.10	3376.13	4		341	
CR	I	3374.924	3373.958	6	181.	341		CR	II	3377.23	3376.26	10	78.	340	
V	I	3375.001	3374.036	3		1000		MN	II	3377.25	3376.28	50		328	
N	III	3375.03	3374.06	60	5.	521		NI	I	3377.300	3376.331	20	104.	1015	
NE	II	3375.0307	3374.0616	80	12.	389		CR	I	3377.363	3376.397	20	254.	341	
OR	I	3375.10	3374.13	1		341		MN	II	3377.385	3376.415	20		328	
FE	I	3375.160	3374.191	3	89.	896		AR	II	3377.4056	3376.4359	160		867	
NI	I	3375.190	3374.221	75	17.	1015		FE	I	3377.459	3376.489	6		896	M
LI	III	3375.238	3374.269			309		CU	II	3377.5836	3376.6139	40		612	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
CR	II	3377.59	3376.62	4		340		P	IV	3380.208	3379.237	90		937	
CR	I	3377.594	3376.628	3		341		F	II	3380.252	3379.282	60		538	
CR	II	3377.68	3376.71	5	112.	340		MN	II	3380.285	3379.315	15		328	
O	III	3377.79	3376.82	4	27.	1015		NE	II	3380.2901	3379.3196	80	12.	389	
CR	I	3378.05	3377.08	2		341		V	I	3380.32	3379.35	2		489	
CU	II	3378.0532	3377.0834	3		612		CR	II	3380.36	3379.39	25	21.	340	
NE	II	3378.1250	3377.1551	120		389		SC	II	3380.367	3379.397	3	38.	1015	
O	II	3378.17	3377.20	120	9.	1015		CU	II	3380.4126	3379.4421	9		612	
CR	I	3378.21	3377.24	1		341		AR	II	3380.4308	3379.4604	40		867	
CU	II	3378.2300	3377.2061	2		612		CR	I	3380.53	3379.56	4	54.	341	
TI	I	3378.246	3377.277	300	23.	1015		AR	II	3380.5479	3379.5774	40		867	
CR	II	3378.33	3377.36	5	149.	340		CU	I	3380.620	3379.653	5		672	
V	I	3378.365	3377.398	10.	54.	1000		BR	II	3380.775	3379.804	1		606	
F	II	3378.389	3377.419	90		538		SE	III	3380.79	3379.82	600		14	
TI	I	3378.455	3377.485	200	25.	1015		CR	II	3380.81	3379.84	50	21.	340	
P	II	3378.546	3377.576	40	12.	496		CR	I	3380.82	3379.85	7	54.	341	
TI	I	3378.550	3377.580	300	23.	1007		CU	I	3380.831	3379.864	3		672	
CR	II	3378.57	3377.60	1		340		CO	II	3380.86	3379.89	1		825	
V	I	3378.595	3377.629	15	54.	1000		TI	II	3380.900	3379.930	1	64.	1015	
TI	III	3378.656	3377.686	25		227		CU	II	3380.9301	3379.9595	110		612	
CU	II	3378.6737	3377.7037	125		612		FE	I	3380.974	3380.004	3	709.	1015	
TI	III	3378.866	3377.896	7		227		FE	I	3381.0803	3380.1097	50	304.	896	
FE	I	3378.947	3377.977	15		896		TI	II	3381.248	3380.278	30	1.	1015	
MN	II	3378.951	3377.981	15		328		CU	II	3381.3017	3380.3310	20		612	
O	IV	3379.03	3378.06	200	4.	86		CR	I	3381.52	3380.55	4		341	
SC	II	3379.179	3378.209	2	38.	1015		NI	I	3381.544	3380.574	400	37.	1015	
NE	II	3379.1866	3378.2165	500	7.	389		CU	II	3381.6525	3380.7117	200		612	
NI	II	3379.2	3378.2			909		NI	V	3381.7	3380.7			922	F P
CR	II	3379.33	3378.36	30	21.	340		FE	I	3381.719	3380.748	3		896	
CU	II	3379.3547	3378.3845	3		612		NI	I	3381.856	3380.885	75	7.	1015	
CU	II	3379.4797	3378.5094	90		612		CU	II	3382.0730	3381.1020	25		612	
FE	I	3379.6488	3378.6785	50	301.	896		FE	II	3382.09	3381.12	3	177.	896	
CU	I	3379.674	3378.707	2		672		CU	I	3382.092	3381.124	60		672	
MN	II	3379.69	3378.72	20		328		O	IV	3382.17	3381.20	570	3.	86	
FE	I	3379.702	3378.732	3	137.	896		MG	III	3382.21	3381.24	160		2	
P	IV	3379.757	3378.786	200		937		FE	I	3382.2968	3381.3259	3	677.	896	
FE	I	3379.9887	3379.0184	25	85.	896		CR	I	3382.30	3381.33	2	236.	341	
CR	I	3380.135	3379.168	30	5.	341		CU	I	3382.388	3381.421	140		672	
SC	II	3380.15	3379.18	2	43.	1015		FE	I	3382.469	3381.498	1	49.	378	
TI	I	3380.186	3379.216	150	24.	1015		AR	I	3382.473	3381.502	60		517	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	3382.648	3381.677	80		328		FE	I	3386.408	3385.436	5		896	M
FE	I	3382.961	3381.990	1		378		CU	II	3386.4376	3385.4656	40		612	
MN	XI	3383.0	3382.0			726	F	Q	IV	3386.49	3385.52	570	3.	86	
CR	I	3383.036	3382.068	7		341		FE	I	3386.517	3385.545	4		896	M
MN	II	3383.06	3382.09	2		328		TI	I	3386.636	3385.664	120	24.	1015	
TI	I	3383.283	3382.312	150	86.	1015		CU	II	3386.677	3385.705	1		612	
F	II	3383.30	3382.33	1		538		SC	I	3386.85	3385.88	1		1030	M
FE	I	3383.3732	3382.4019	10	84.	896		TI	I	3386.914	3385.942	400	23.	1007	
FE	I	3383.434	3382.463	4		896	M	V	I	3386.96	3385.91	1		489	
CR	II	3383.65	3382.68	50	3.	340		MN	II	3387.12	3386.15	5		328	
O	III	3383.66	3382.69	25	27.	168		NE	II	3387.1747	3386.2025	60	12.	389	
TI	III	3383.685	3382.714	3		227		CL	III	3387.19	3386.22	500	11.	43	
FE	I	3383.667	3382.716	4		896	M	FE	II	3387.424	3386.452	1	88.	1015	
ZN	III	3383.83	3382.86	1		162		CR	I	3387.482	3386.513	12	236.	341	
MG	III	3383.87	3382.90	200		2		CR	I	3387.685	3386.717	3		341	
FE	I	3384.358	3383.387	3	245.	1015		V	I	3387.879	3386.910	0		1000	
CR	I	3384.51	3383.54	1		341		S	III	3388.08	3387.12	400	2.	323	
TI	II	3384.54	3383.57		63.	1015		BR	II	3388.15	3387.18	10		606	
MN	II	3384.554	3383.582	0		328		SE	III	3388.20	3387.23	1000		14	
CR	I	3384.596	3383.628	3		341		CU	II	3388.3260	3387.3535	2		612	
FE	I	3384.6634	3383.6919	20	85.	896		MG	III	3388.34	3387.37	200		2	
TI	II	3384.732	3383.761	125	1.	1015		FE	I	3388.3787	3387.4062	12	306.	896	
V	I	3384.78	3383.76	1		489		NI	I	3388.438	3387.466	15	17.	1015	
O	III	3384.82	3383.85	10	27.	168		V	I	3388.452	3387.386	2		1000	
AR	I	3384.941	3383.969	10		517		BR	II	3388.562	3387.590	10		606	
FE	I	3384.9502	3383.9785	60	83.	896		CL	III	3388.57	3387.60	600	2.	38	
CU	II	3385.041	3384.069	1		612		FE	I	3388.590	3387.618	4		896	M
CR	I	3385.211	3384.242	10	54.	341		CO	II	3388.68	3387.71	60	2.	825	
CU	II	3385.3038	3384.3321	40		612		CR	II	3388.69	3387.72	5	90.	340	
V	I	3385.570	3384.602	5		1000		MN	II	3388.723	3387.749	80		328	
CR	I	3385.617	3384.649	18	54.	341		CU	II	3388.7711	3387.7985	4		612	
FE	I	3385.737	3384.765	1	25.	378		MN	II	3388.790	3387.816	20		328	
CU	II	3385.7416	3384.7697	3		612		TI	II	3388.806	3387.834	50	1.	1015	
CU	I	3385.77	3384.80	15		672		CR	II	3388.92	3387.95	3	112.	340	
MN	II	3385.78	3384.81	80		328		CU	I	3389.04	3388.07	8		672	
CU	II	3385.9168	3384.9450	100		612		FE	II	3389.107	3388.134	12	77.	1015	
O	III	3385.92	3384.95	40	27.	168		CO	II	3389.18	3388.23	50	2.	825	
SE	II	3385.95	3384.98	150		468		CO	VI	3389.2	3388.2			108	F
CR	I	3386.282	3385.313	15	236.	341		FE	XIII	3389.2	3388.2			726	F
CU	I	3386.363	3385.394	2		672		NE	II	3389.3916	3388.4188	150		389	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
CU	II	3389.4218	3388.4490	8		612		CU	I	3392.987	3392.016	8		672	
CO	II	3389.43	3388.46	25		825		CR	I	3393.03	3392.06	2	254.	341	
AR	II	3389.5037	3388.5309	160		867		F	II	3393.122	3392.148	25		538	
FE	I	3389.591	3388.618	3		896	M	AR	I	3393.269	3392.295	10		517	
CR	I	3389.674	3388.705	20	54.	341		FE	I	3393.2775	3392.3037	50	83.	896	
TI	II	3389.728	3388.755	8	53.	1015		SE	III	3393.38	3392.41	350		14	
CR	I	3389.863	3388.894	3		341		V	I	3393.42	3392.45	1		1000	
NE	II	3389.921	3388.948	120		1016		MN	II	3393.440	3392.466	8		328	
FE	I	3389.9408	3388.9678	8	502.	896		CR	III	3393.53	3392.56	5		490	
CR	II	3390.04	3389.07	2		340		NE	II	3393.583	3392.609	80	22.	1016	
BR	II	3390.280	3389.307	10		606		FE	I	3393.6252	3392.6514	125	85.	896	
CR	I	3390.41	3389.44	2		341		TI	I	3393.684	3392.713	100	136.	1015	
V	I	3390.52	3389.50	00		1000		V	I	3393.65J	3392.729	1		1000	
MN	II	3390.703	3389.730	140		328		NE	II	3393.766	3392.792	300	7.	1016	
FE	I	3390.7158	3389.7426	12	87.	896		CL	III	3393.86	3392.89	800	11.	43	
GE	II	3390.755	3389.782	40		676		TI	III	3393.919	3392.945	40		227	
MN	II	3391.049	3390.076	15		328		FE	I	3393.960	3392.986	6		896	M
FE	II	3391.055	3390.082	2	207.	1015		NI	I	3393.963	3392.992	500	20.	1015	
O	IV	3391.16	3390.19	F	3.	86	H	CR	II	3393.97	3393.00	35	21.	340	
TI	III	3391.195	3390.222	7		227		FE	VI	3394.0	3393.0			1034	
O	II	3391.22	3390.25	150	9.	1015		NE	II	3394.1566	3393.1826	60		389	
SC	IV	3391.221	3390.248	1		720		FE	I	3394.3521	3393.3781	5	376.	896	
AR	I	3391.266	3390.293	10.		517		F	II	3394.38	3393.40	4		174	
V	I	3391.440	3390.388	2		1000		CL	III	3394.42	3393.45	800	11.	43	
NE	II	3391.5251	3390.5518	70	12.	389		FE	I	3394.564	3393.590	1	305.	378	
FE	I	3391.601	3390.627	4		896	M	FE	I	3394.597	3393.623	2	376.	378	
MN	III	3391.619	3390.646	15		301		CR	II	3394.82	3393.85	30	21.	340	
TI	I	3391.655	3390.682	100	86.	1015		F	II	3394.843	3393.869	90		538	
CR	I	3391.736	3390.766	18	236.	341		FE	I	3394.8898	3393.9156	4	136.	896	
V	I	3391.785	3390.767	6		1000		FE	I	3395.0513	3394.0771	4	188.	896	
NI	I	3392.023	3391.050	250	5.	1015		F	II	3395.227	3394.253	40		538	
CR	I	3392.05	3391.08	5		341		SC	II	3395.26	3394.29	1	38.	1015	
MN	II	3392.23	3391.26	1		328		CR	I	3395.28	3394.31	35	21.	340	
FE	II	3392.276	3391.303	1	117.	1015		O	III	3395.29	3394.32	4	27.	168	P
CR	I	3392.33	3391.36	18	254.	341		CU	III	3395.315	3394.340	2		724	
CR	II	3392.39	3391.41	35	3.	340		TI	II	3395.34	3394.37	M	63.	1015	
V	I	3392.584	3391.614	0		1000		MN	II	3395.361	3394.387	60		328	
AR	III	3392.82	3391.85	150	6.	79		TI	II	3395.545	3394.574	40	1.	1015	
MN	II	3392.84	3391.87	10		328		FE	I	3395.5576	3394.5833	20	81.	896	
FE	I	3392.9827	3392.0090	10	499.	896		V	I	3395.73	3394.76	2		1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
MN	II	3395.816	3394.842	80		328		TI	I	3399.606	3398.634	80	86.	1015	
MN	II	3395.975	3395.000	8		328		F	II	3399.611	3398.636	40		538	
FE	I	3396.054	3395.080	1		378		FE	I	3399.799	3398.824	5		896	M
FE	II	3396.307	3395.336	4	117.	1015		NE	VI	3399.9	3398.9	57		885	M
P	III	3396.340	3395.365	60		936		FE	I	3400.132	3399.156	4		896	M
TI	III	3396.362	3395.387	3		227		CO	II	3400.16	3399.18	2		825	
CU	I	3396.447	3395.476	60		672		F	II	3400.170	3399.195	150		538	
V	I	3396.496	3395.524	3		1000		FE	I	3400.2051	3399.2296	5	302.	896	
F	II	3396.563	3395.588	40		538		FE	I	3400.3090	3399.3335	125	85.	896	
CR	II	3396.59	3395.62	20	100.	340		CR	II	3400.51	3399.54	18	100.	340	
F	II	3396.886	3395.911	25		538		BR	I	3401.005	3400.030	25		757	
TI	III	3396.956	3395.981	15		227		FE	I	3401.018	3400.042	4		896	M
CR	I	3396.99	3396.02	4		341		BR	I	3401.035	3400.060	20		757	
NI	I	3397.156	3396.184	30	122.	1015		CR	II	3401.05	3400.08	2	67.	340	
V	I	3397.195	3396.224			1000		MN	II	3401.092	3400.117	170		328	
CU	I	3397.295	3396.324	10		672		CL	III	3401.12	3400.15	200		43	
FE	I	3397.3525	3396.3777	4	25.	896		V	I	3401.172	3400.200	1		1000	
TI	III	3397.407	3396.432	40		227		NA	II	3401.20	3400.20	A		40	
F	II	3397.444	3396.469	40		538		V	I	3401.367	3400.396	12	46.	1000	
V	I	3397.485	3396.514	3		1000		FE	V	3401.38	3400.41			229	F.
O	IV	3397.75	3396.79	400	3.	86		V	III	3401.60	3400.62	30		325	
FE	I	3397.9509	3396.9759	5	26.	896		FE	I	3401.638	3400.662	1		378	
FE	I	3398.1805	3397.2055	5	503.	896		TI	III	3401.867	3400.891	7		227	
TI	III	3398.210	3397.235	40		227		BR	II	3401.90	3400.93	1		606	
NI	I	3398.25	3397.28	10		602		FE	I	3401.983	3401.007	1		378	
CR	III	3398.36	3397.38	10		490		F	II	3402.009	3401.032	40		538	
FE	I	3398.5272	3397.5521	5	447.	896		V	III	3402.068	3401.092	15		325	
V	I	3398.554	3397.583	6		1000		CR	I	3402.11	3401.14	2		341	
FE	I	3398.6136	3397.6385	5	26.	896		NI	I	3402.139	3401.166	40	107.	1015	
V	I	3398.817	3397.845	4		1000		V	I	3402.318	3401.345	2		1000	
NE	II	3398.839	3397.864	50	36.	1016		FE	I	3402.4945	3401.5184	10	26.	896	
BR	II	3398.85	3397.88	10		606		MN	II	3402.609	3401.633	100		328	
AR	II	3398.8709	3397.8958	60		867		F	III	3402.614	3401.638	150		537	
F	II	3398.941	3397.966	25		538		CR	I	3402.69	3401.72	5		341	
FE	I	3399.1913	3398.2161	5	304.	896		V	I	3402.866	3401.894			1000	
V	I	3399.245	3398.272	1		1000		NE	VI	3402.9	3401.9	39		885	M
FE	II	3399.327	3398.355	4	105.	1015		V	III	3403.045	3402.069	15		325	
P.	IV	3399.446	3398.470	90		937		CU	I	3403.217	3402.244	150		672	
CO	VI	3399.5	3398.5			108	F	FE	I	3403.231	3402.255	20	614.	896	
FE	I	3399.601	3398.625	5		896		V	I	3403.340	3402.367			1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
BR	I	3403.388	3402.411	15		757		FE	I	3406.550	3405.572	5		896	M
TI	II	3403.395	3402.422	8	53.	1015		BE	II	3406.6	3405.6			862	
CR	II	3403.40	3402.43	25	21.	340		O	III	3406.71	3405.74	10	15.	1015	
BR	I	3403.412	3402.436	10		757		O	IV	3406.75	3405.78	10	3.	86	
V	I	3403.545	3402.572	9	46.	1000		FE	I	3406.8091	3405.8319	10	299.	896	
MN	III	3403.57	3402.59	10		301		CL	II	3406.861	3405.885	4		613	
F	II	3403.696	3402.720	4		538		F	II	3406.952	3405.975	150		538	
V	III	3403.800	3402.820	10		325		FE	I	3407.4139	3406.4365	8	676.	896	
CR	I	3403.88	3402.91	1	254.	341		CL	VI	3407.5	3406.5			111	
V	I	3403.951	3402.977	0		1000		F	II	3407.539	3406.562	350		538	
S		3404.	3403.			107	N	V	I	3407.592	3406.617	2		1000	
CU	I	3404.090	3403.107	5		672		FE	I	3407.7773	3406.7999	25	85.	896	
CR	II	3404.27	3403.30	100	3.	340		V	I	3407.811	3406.838	6	46.	1000	
FE	I	3404.2805	3403.3039	5	304.	896	F	CR	I	3407.84	3406.87	2		341	
CO	VI	3404.3	3403.3			108		FE	V	3407.86	3406.89			229	F
V	I	3404.338	3403.364	5		1000		F	II	3407.862	3406.885	250		538	
TI	I	3404.343	3403.369	40	86.	1015		NE	II	3407.923	3406.945	120	51.	1016	
NI	I	3404.406	3403.432	40	108.	1015		MN	II	3408.10	3407.11	2		328	
O	IV	3404.50	3403.52	570	2.	86		P	IV	3408.103	3407.125	150		937	
CR	I	3404.561	3403.588	18	254.	341		TI	II	3408.180	3407.205	3	1.	1015	
ZN	III	3404.82	3403.85	100		162		CR	I	3408.20	3407.23	8		341	
CR	I	3404.955	3403.983	5		341		O	II	3408.35	3407.38	120	44.	1015	
FE	I	3405.2467	3404.2699	5	25.	896		FE	I	3408.4361	3407.4585	220	83.	896	
FE	I	3405.2775	3404.3007	5	301.	896		FE	I	3408.508	3407.530	4	81.	896	
FE	I	3405.3304	3404.3535	80	83.	896		MN	II	3408.65	3407.68	1		328	
P	II	3405.403	3404.430	50		496		MN	II	3408.80	3407.83	0		328	
TI	III	3405.439	3404.462	80		227		V	I	3408.974	3408.001	3		1000	
CU	I	3405.63	3404.66	112		672		CR	I	3408.98	3408.01	6		341	
FE	I	3405.736	3404.759	15	300.	896		NE	VI	3409.1	3408.1	144		895	M
NE	II	3405.797	3404.821	100	51.	1016		N	II	3409.105	3408.127	110	7.	200	
FE	I	3405.867	3404.890	5	300.	896		U	III	3409.11	3408.13	4	15.	1015	
V	I	3405.938	3404.964	2		1000		CR	I	3409.34	3408.37	2		341	
TI	II	3405.94	3404.97	1	63.	1015		V	I	3409.43	3408.46	1		1000	
TI	I	3406.068	3405.094	50	86.	1015		CR	I	3409.53	3408.56	2		341	
CR	II	3406.10	3405.13	2		340		CR	I	3409.63	3408.66	2		341	
V	I	3406.134	3405.160	6	46.	1000		F	II	3409.653	3408.675	250		538	
CR	I	3406.191	3405.217	10		341		CR	II	3409.73	3408.76	150	3.	340	
SI	V	3406.33	3405.36	100		941		CR	I	3409.91	3408.94	7		341	
V	III	3406.405	3405.428	100		325		F	II	3409.965	3408.988	400		538	
NI	I	3406.47	3405.50	K	122.	1015		V	I	3410.072	3409.098	4		1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
FE	I	3410.1863	3409.2082	4	614.	896		CR	III	3414.17	3413.20	5		490	
CR	I	3410.34	3409.37	6		341		MN	II	3414.256	3413.276	1		328	
NI	I	3410.553	3409.578	40	5.	1015		CU	I	3414.319	3413.343	140		672	
FE	I	3410.583	3409.605	1	188.	378		NI	I	3414.44	3413.46	K	124.	1015	
O	IV	3410.64	3409.66	350	3.	86		NI	I	3414.455	3413.478	125	5.	1015	
BR	I	3410.706	3409.728	15		757		AR	III	3414.51	3413.53	60		79	
CR	I	3410.73	3409.76	1		341		P	IV	3414.523	3413.543	200		937	
BR	I	3410.731	3409.753	10		757		O	IV	3414.62	3413.64	350	2.	86	
TI	II	3410.785	3409.809	4	1.	1015		V	I	3414.74	3413.76	1		1000	
O	II	3410.82	3409.84	90	44.	1015		SE	III	3414.90	3413.93	1000		14	
CL	II	3410.891	3409.913	8		613		NI	I	3414.916	3413.939	60	17.	1015	
CR	I	3411.00	3410.03	1		341		CR	III	3414.99	3414.01	20		490	
FE	I	3411.0053	3410.0270	4	542.	896		CU	I	3414.993	3414.017	5		672	
FE	I	3411.1466	3410.1683	12	735.	896		TI	II	3415.00	3414.02	0	127.	1015	
V	III	3411.205	3410.227	20		325		CR	I	3415.065	3414.089	2		341	
CR	II	3411.50	3410.53	3		340		FE	II	3415.121	3414.144	2	91.	1015	
FE	I	3411.559	3410.581	0	244.	378		V	I	3415.177	3414.201	5		1000	
F	II	3411.776	3410.798	40		538		GE	III	3415.24	3414.27	20		406	
FE	I	3411.8742	3410.8957	5	25.	896		CR	I	3415.33	3414.35	1		341	
V	I	3411.93	3410.96	1		1000		FE	I	3415.481	3414.501	12		896	M
CR	I	3411.99	3411.02	10		341		FE	I	3415.543	3414.564	1		378	
FE	I	3412.1050	3411.1264	6	299.	896		F	II	3415.631	3414.652	500		538	
FE	I	3412.3314	3411.3528	15	301.	896		SI	II	3415.737	3414.758	3		678	
NE	II	3412.3381	3411.3594	80	45.	389		NI	I	3415.742	3414.765	750	19.	1015	
TI	III	3412.382	3411.404	1		227		FE	I	3415.743	3414.764	5		896	M
CL	II	3412.41	3411.43	1		613		V	I	3415.75	3414.77	150		1000	
F	II	3412.584	3411.605	300		538		NE	II	3415.8675	3414.8880	70	20.	389	
TI	II	3412.66	3411.68	M	63.	1015		O	III	3416.27	3415.29	25	15.	1015	
O	IV	3412.67	3411.69	E	850	86		CR	I	3416.286	3415.311	7		341	
F	III	3412.672	3411.693			537		CR	II	3416.42	3415.44	2	100.	340	
BR	II	3412.850	3411.874	1		606		FE	I	3416.5096	3415.5299	12	83.	896	
F	II	3412.996	3412.017	300		538		CR	I	3416.56	3415.58	1		341	
P	IV	3413.083	3412.105	40		937		NI	I	3416.65	3415.67	K	123.	1015	
CR	I	3413.238	3412.264	8		341		CO	II	3416.76	3415.78	75	2.	825	
NI	I	3413.45	3412.47	5	90.	1015		CU	I	3416.77	3415.80	140		672	
P	IV	3413.632	3412.653	120		937		FE	II	3416.998	3416.021	5	16.	1015	
V	II	3413.716	3412.737	1		782		FE	II	3417.027	3416.047	6	16.	896	
CU	I	3414.083	3413.107	10		672		CR	III	3417.18	3416.20	20		490	
FE	I	3414.1103	3413.1312	155	85.	896		NA	IV	3417.2	3416.2			108	F
NE	II	3414.1240	3413.1449	100	45.	389		FE	I	3417.263	3416.283	5		896	M



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
F	II	3417.429	3416.449	570		538		O	II	3420.89	3419.91	4		168	M
V	I	3417.514	3416.541	2		1000		MN	II	3421.003	3420.022	10		328	
SC	I	3417.652	3416.674	2		1015		V	III	3421.05	3420.07	15		325	
FE	I	3417.6575	3416.6775	4	142.	896		CU	I	3421.143	3420.166	8		672	
F	II	3417.776	3416.796	500		538		FE	II	3421.163	3420.184	0	89.	1015	
NE	II	3417.8932	3416.9131	120	21.	389		V	III	3421.19	3420.21	0		325	
TI	II	3417.935	3416.957	2	53.	1015		C	I	3421.386	3420.405	1	7.1	821	
F	II	3417.984	3417.004	650		538		O	II	3421.61	3420.63	10		168	M
V	I	3418.044	3417.069	5		1000		P	IV	3421.667	3420.686	40		937	
FE	I	3418.111	3417.131	5		896	M	NI	I	3421.720	3420.741	25	9.	1015	
BR	II	3418.218	3417.240	10		606		CR	I	3421.99	3421.02	2		341	
FE	I	3418.251	3417.273	3	26.	1015		TI	III	3422.142	3421.161	3		227	
AR	III	3418.46	3417.49	70		79		CR	II	3422.17	3421.19	75	3.	340	
TI	III	3418.601	3417.621	130		227		NI	I	3422.20	3421.22	105.	105.	1015	
NE	II	3418.669	3417.689	120		1016		NI	I	3422.321	3421.342	35	122.	1015	
FE	I	3418.8211	3417.8408	40	81.	896		NE	VI	3422.4	3421.4	78		885	M
TI	I	3418.86	3417.88	U	86.	1015		CR	I	3422.43	3421.45	3		341	
NE	I	3418.8839	3417.9035	70	4.	389		MN	II	3422.432	3421.451	20		328	
CR	I	3418.96	3417.98	2		341		MN	II	3422.545	3421.564	10		328	
NE	I	3418.9865	3418.0062	10		389		V	III	3422.581	3421.599	40		325	
FE	I	3419.145	3418.164	10	577.	896		CR	II	3422.60	3421.62	5	60.	340	
FE	I	3419.489	3418.508	40	81.	896		CR	I	3422.65	3421.67	3		341	
V	I	3419.493	3418.517	5		1000		CR	I	3422.69	3421.71	5		341	
SC	I	3419.506	3418.528	2		1015		CU	I	3423.07	3422.10	1		672	
AR	I	3419.56	3418.58	10		517		FE	I	3423.100	3422.118	4		896	
CR	I	3419.644	3418.667	1		341		NI	I	3423.311	3422.332	20	105.	1015	
CR	I	3419.79	3418.81	1		341		FE	I	3423.474	3422.493	15	444.	896	
FE	I	3419.847	3418.867	5		896	M	FE	I	3423.6378	3422.6563	30	85.	896	
BR	I	3419.869	3418.888	15		757		TI	II	3423.640	3422.661	1	63.	1015	
FE	I	3419.886	3418.905	1		378		CR	II	3423.69	3422.73	125	3.	340	
MN	III	3419.9	3418.8			909	F	MN	III	3423.8	3422.8			909	F
FE	I	3420.127	3419.146	5	576.	896		NI	I	3423.857	3422.878	20	122.	1015	
P	II	3420.320	3419.343	125	3.	496		CR	I	3424.024	3423.047	7		341	
SC	I	3420.336	3419.358	1	21.	1015		AL	IV	3424.104	3423.125	350		888	
MN	II	3420.386	3419.405	140		328		CR	I	3424.156	3423.178	7		341	
MN	II	3420.56	3419.58	10		328		V	I	3424.306	3423.328			1000	
CR	I	3420.64	3419.66	2		341		FE	I	3424.553	3423.571	4		896	
FE	I	3420.6750	3419.6943	4	377.	896		NI	I	3424.691	3423.711	250	20.	1015	
BR	II	3420.79	3419.82	1		606		CO	II	3424.80	3423.82	75	2.	825	
CR	I	3420.87	3419.89	3		341		V	I	3424.843	3423.867	3		1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
BR	II	3424.882	3423.902	50		606		MN	III	3428.4	3427.4			909	F
NE	I	3424.8944	3423.9126	10		389		V	I	3428.465	3427.486	1		1000	
P	IV	3425.120	3424.138	90		937		CR	I	3428.60	3427.62	5		341	
AR	III	3425.23	3424.25	90	6.	79		CR	I	3428.63	3427.65	5		341	
FE	I	3425.2660	3424.2840	60	81.	896		MN	II	3428.64	3427.65	20		328	
V	III	3425.41	3424.43	0		325		FE	I	3428.817	3427.834	4		896	M
CR	I	3425.44	3424.46	1		341		CU	I	3428.85	3427.87	1		672	
P	IV	3425.684	3424.702	120		937		FE	I	3428.994	3428.011	5	616.	896	
NE	VI	3425.7	3424.7	243		885	M	MN	II	3429.133	3428.150	80		328	
MN	II	3425.894	3424.911	2		328		FE	I	3429.1755	3428.1925	4	81.	896	
KR	I	3425.9224	3424.9403	15		1012		FE	I	3429.211	3428.228	5		896	M
P	II	3425.975	3424.997	100	3.	496		SE	III	3429.37	3428.39	600		14	
FE	I	3425.9925	3425.0104	20	541.	896		FE	I	3429.391	3428.409	5	302.	896	
FE	VI	3426.0	3425.0			1034		NI	I	3429.40	3428.42	K	123.	1015	
V	I	3426.049	3425.072	6		1000		FE	I	3429.435	3428.452	5		896	M
V	I	3426.265	3425.287	1		1000		V	I	3429.469	3428.490			1000	
O	IV	3426.55	3425.57	200	3.	86		FE	I	3429.481	3428.498	6		896	M
BR	I	3426.560	3425.577	60		757		BR	I	3429.588	3428.605	15		757	
FE	II	3426.562	3425.582	3	5.	1015		O	III	3429.65	3428.67	25	15.	1015	
FE	I	3426.655	3425.672	4		896	M	NE	II	3429.6670	3428.6839	120	42.	389	
NE	V	3426.85	3425.87			108	F	FE	I	3429.7316	3428.7485	60	836.	896	
V	I	3426.937	3425.958	1		1000		AL	II	3429.897	3428.916	150	25.	1015	
CR	I	3426.95	3425.97	12		341		CR	II	3429.92	3428.94	7	99.	340	
NE	VI	3427.0	3426.1	351		885	M	BR	II	3429.938	3428.956	100		606	
ZN	III	3427.07	3426.09	30		162		MN	II	3430.03	3429.04	20		328	
CR	II	3427.11	3426.14	8	111.	340		CR	I	3430.04	3429.06	2		341	
P	II	3427.242	3426.260	50	3.	496		SC	I	3430.187	3429.206	3	21.	1015	
KR	I	3427.2448	3426.2623	2		1012		NE	VI	3430.3	3429.3	126		865	M
FE	I	3427.3081	3426.3257	12	135.	896		SC	I	3430.464	3429.483	3	21.	1015	
F	III	3427.343	3426.360	150		537		FE	I	3430.474	3429.491	20		896	M
FE	I	3427.3618	3426.3793	20	25.	896		FE	I	3430.792	3429.808	1	540.	378	
FE	I	3427.3697	3426.3872	20	82.	896		BR	I	3430.792	3429.809	8		757	
FE	I	3427.6110	3426.6285	25	82.	896		FE	V	3430.85	3429.87			229	F
FE	I	3427.649	3426.666	6	615.	896		CR	II	3430.88	3429.90	1		340	
V	I	3427.70	3426.73	1		1000		CR	III	3430.88	3429.90	2		490	
CR	III	3427.71	3426.73	20		490		CL	IX	3431.0	3430.0			111	
FE	I	3427.9708	3426.9882	5		896		AR	III	3431.01	3430.03	20		79	
V	I	3428.07	3427.09	1		1000		V	II	3431.118	3430.134	4		782	
FE	I	3428.1019	3427.1192	220	26.	896		CR	I	3431.13	3430.15	1		341	
FE	I	3428.176	3427.193	10		896	M	P	IV	3431.165	3430.182	120		937	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
P	III	3431.337	3430.354	4		936		CR	I	3435.45	3434.47	1		341	
CR	II	3431.40	3430.42	3	67.	340		SI	V	3435.67	3434.69	100		941	
O	III	3431.58	3430.60	40	15.	1015		FE	I	3435.944	3434.960	1	* 776.	378	
CO	II	3431.83	3430.84	4		825		CR	I	3436.12	3435.14	1		341	
MN	II	3432.11	3431.13	10		328		CR	I	3436.24	3435.26	1		341	
CR	I	3432.258	3431.278	20	53.	341		CR	I	3436.437	3435.479	10	53.	341	
SC	I	3432.340	3431.358	3	21.	1015		NI	I	3436.472	3435.489	10	53.	1015	
V	III	3432.55	3431.56	1		325		SC	I	3436.538	3435.555	5	21.	1015	
CR	I	3432.563	3431.582	5		341		CR	I	3436.656	3435.676	18	52.	341	
CR	I	3432.674	3431.694	10	53.	341		CR	I	3436.799	3435.818	15	53.	341	
KR	I	3432.7026	3431.7188	20		1012		FE	I	3437.0213	3436.0363	6	614.	896	
FE	I	3432.7973	3431.8135	8		896		V	I	3437.062	3436.080	1		1000	
FE	I	3432.8270	3431.8431	8	676.	896		FE	II	3437.053	3436.112	5	91.	1015	
CR	I	3432.84	3431.86	3		341		CR	I	3437.170	3436.190	50	52.	341	
CR	I	3432.973	3431.993	15	53.	341		MN	II	3437.25	3436.27	5		328	
S	VI	3433.	3432.			90		FE	I	3437.452	3436.467	5		896	M
V	I	3433.03	3432.05	1		1000		CU	I	3437.526	3436.543	5		672	
CR	I	3433.291	3432.311	12	53.	341		F	III	3437.544	3436.659	250		537	
BR	II	3433.31	3432.33	10		606		FE	I	3438.030	3437.045	12	539.	896	
V	III	3433.37	3432.39	1		325		BR	II	3438.073	3437.090	1		606	
NI	V	3433.7	3432.7			922	F P	N	II	3438.132	3437.147	360	13.	200	
CR	I	3433.821	3432.840	8		341		CO	II	3438.29	3437.31	10		825	
S		3434.	3433.			107	N	FE	I	3438.6097	3437.6243	5	187.	896	
CR	II	3434.27	3433.29	75	3.	340		V	I	3438.760	3437.779	1		1000	
NI	I	3434.540	3433.558	350	19.	1015		NE	VII	3438.8	3437.8	214		805	M
FE	I	3434.552	3433.568	8		896	M	V	I	3438.858	3437.876	2		1000	
CR	I	3434.570	3433.589	40	52.	341		CR	II	3438.91	3437.93	2	111.	340	
C	VI	3434.64	3433.66		88.	309		FE	I	3438.9342	3437.9488	6	614.	696	
V	III	3434.644	3433.655	1		325		MN	II	3439.024	3438.038	10		328	
CR	I	3434.66	3433.68	3		341		AR	III	3439.03	3438.04	80	6.	79	
O	VI	3434.67	3433.69	250		71		CU	III	3439.073	3438.088	10		724	
NE	VI	3434.7	3433.7	165		885	M	FE	I	3439.293	3438.308	12		896	
F	II	3434.701	3433.716	150		538		CR	II	3439.44	3438.46	1	110.	340	
MN	III	3434.772	3433.788	20		301		F	II	3439.670	3438.684	4		538	
CU	I	3434.953	3433.972	3		672		NI	II	3439.9	3438.8			909	F
FE	I	3435.011	3434.029	3	300.	1015		NE	II	3439.9192	3438.9335	90	45.	389	
GE	III	3435.06	3434.03	40		406		MN	II	3439.955	3438.969	220	1.	328	
CR	I	3435.087	3434.106	25	52.	341		V	I	3439.97	3438.99	00		1000	
KR	I	3435.1238	3434.1393	8		1012		FE	I	3440.0217	3439.0360	6	299.	896	
CR	I	3435.28	3434.30	1		341		CR	I	3440.339	3439.358	8		341	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
SC	I	3440.38	3439.40	1	21.	1015		NE	II	3444.6934	3443.7065	80	42.	389	
CR	III	3440.56	3439.58			893	F P	CR	I	3444.762	3443.779	20	110.	341	
V	I	3440.641	3439.659			1000		V	III	3444.797	3443.810	40		325	
FE	I	3440.873	3439.887	12		896	M	FE	I	3444.863	3443.878	150	6.	1015	
O	III	3440.98	3439.99	40	13.	1015	P	SC	I	3444.974	3443.989	1	21.	1015	
CR	III	3441.16	3440.17	20		490		O	III	3445.09	3444.10	60	15.	1015	
SC	I	3441.16	3440.18	0		1030	M	CO	VI	3445.1	3444.1			108	F
CU	I	3441.489	3440.507	155		672		V	III	3445.119	3444.130	20		325	
FE	I	3441.594	3440.610	450	6.	1015		NI	I	3445.236	3444.251	25	122.	1015	
NE	II	3441.7342	3440.7480	70	45.	389		SE	II	3445.25	3444.27	150		468	
FE	I	3441.973	3440.989	225	6.	1015		TI	II	3445.293	3444.306	15	6.	1007	
CR	I	3442.092	3441.109	25	52.	341		MN	II	3445.32	3444.33	5		328	
MN	II	3442.335	3441.347	10.		328		CR	II	3445.32	3444.34	4	111.	340	
CR	I	3442.431	3441.449	50	52.	341		MN	II	3445.508	3444.521	5		328	
V	III	3442.481	3441.495	30		325		SC	I	3445.56	3444.57	2		1028	
NE	II	3442.964	3441.978	50	36.	1016		V	I	3445.84	3444.86	1		1000	
MN	II	3442.974	3441.987	550	2.	328		CR	II	3446.02	3445.04	5	110.	340	
V	I	3442.988	3442.006	2		1000		CR	I	3446.080	3445.097	15	51.	341	
P	III	3443.001	3442.014	4		936		FE	I	3446.137	3445.151	60	81.	1015	
NI	I	3443.029	3442.044	25	104.	1015		N	IV	3446.18	3445.20	20	7.	824	
FE	II	3443.224	3442.239	3	89.	1015		CR	I	3446.588	3445.604	50	51.	341	
V	I	3443.299	3442.317	2		1000		FE	V	3446.61	3445.62			229	F
FE	I	3443.349	3442.364	15	134.	1015		CU	III	3446.611	3445.623	3		724	
F	II	3443.437	3442.450	40		538		F	II	3446.66	3445.68	2		174	
MN	II	3443.53	3442.53	20		328		V	III	3446.67	3445.68	0		325	
AR	I	3443.54	3442.55	25		517		V	I	3446.795	3445.812	2		1000	
NI	I	3443.544	3442.559	20	124.	1015		P	IV	3446.915	3445.928	90		937	
AR	I	3443.57	3442.59	25		517		MN	II	3446.946	3445.958	8	9.	328	
CR	I	3443.575	3442.592	3		341		CR	I	3447.01	3446.03	1		341	
FE	I	3443.657	3442.672	9	26.	1015		MN	II	3447.116	3446.128	12	9.	328	
V	I	3443.910	3442.927	1		1000		NI	V	3447.2	3446.2			922	F P
NI	I	3443.92	3442.93	10		602		ZN	III	3447.20	3446.21	15		162	
CR	II	3443.96	3442.98	1	60.	340		NI	I	3447.249	3446.263	500	20.	1015	
FE	I	3443.964	3442.979	3	499.	1015		MN	II	3447.25	3446.26	1		328	
NI	I	3443.98	3443.00	5		602		K	I	3447.359	3446.372	300	4.	1019	
MN	II	3444.044	3443.058	5		328		CO	II	3447.38	3446.40	100	2.	825	
CR	III	3444.21	3443.23	15		490		K	XV	3447.4	3446.4			1003	F
SI	V	3444.46	3443.47	10		941		ZN	III	3447.53	3446.54	10		162	
V	I	3444.53	3443.55	1		1000		O	III	3447.72	3446.73	10	25.	1015	
N	IV	3444.58	3443.59	40	7.	824		FE	I	3447.777	3446.791	3	244.	1015	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	I	3447.933	3446.947	3	26.	1015		O	III	3452.32	3451.33	4	25.	1015	
CR	I	3447.996	3447.012	25	52.	341		BE	I	3452.362	3451.372	1		333	
V	I	3448.07	3447.09	00		1000		MN	II	3452.550	3451.549	10		328	
D	III	3448.21	3447.22	4	25.	1015		FE	II	3452.600	3451.614	2	207.	645	
FE	I	3448.264	3447.278	24	82.	1015		FE	I	3452.616	3451.628	6	139.	1015	
K	I	3448.363	3447.375	250	4.	1019		FE	I	3452.903	3451.915	30	81.	1015	
CR	I	3448.410	3447.426	40	52.	341		AL	IV	3453.147	3452.159	50		888	
HE	I	3448.574	3447.586	15		497		FE	I	3453.261	3452.273	30	25.	1015	
CU	I	3448.574	3447.590	3		672		TI	II	3453.41	3452.42	4		601	
V	III	3448.606	3447.618	50		325		CR	I	3453.47	3452.48	1		341	
NE	I	3448.6908	3447.7028	30		389		BR	II	3453.516	3452.528	1		606	
CR	I	3448.747	3447.762	35	52.	341		CR	I	3453.59	3452.60	1		341	
O	II	3448.91	3447.98	60	27.	1015		NI	I	3453.878	3452.890	200.	17.	1015	
O	III	3449.04	3448.05	2	25.	1015		V	I	3453.97	3452.98	00		1000	
CR	I	3449.173	3448.188	8		341		FE	I	3454.010	3453.022	6	301.	1015	
FE	I	3449.179	3448.190	1	186.	378		NE	II	3454.0572	3453.0679	80	21.	389	
FE	II	3449.420	3448.433	1	90.	1015		CR	I	3454.203	3453.217	10	253.	341	
FE	I	3449.465	3448.478	3	444.	1015		O	II	3454.23	3453.24	1	71.	1015	
SC	I	3449.490	3448.503	1	21.	1015		CR	I	3454.314	3453.328	40	52.	341	
FE	I	3449.856	3448.869	3	242.	1015		V	I	3454.50	3453.51	1		1000	
V	III	3449.918	3448.929	2		325		TI	I	3454.65	3453.66			911	
CR	I	3450.08	3449.10	1		341		CR	I	3454.723	3453.737	20	52.	341	
P	III	3450.148	3449.160	1		936		NE	I	3455.1845	3454.1949	15		389	
CR	II	3450.26	3449.28	1	111.	340		MN	II	3455.492	3454.500	10		328	
MN	II	3450.462	3449.473	40		328		CU	I	3455.671	3454.686	140		672	
V	I	3450.496	3449.511	0		1000		N	IV	3455.69	3454.70	20	7.	824	
FE	I	3451.315	3450.328	30	82.	1015		NE	II	3455.7618	3454.7720	90		389	
CU	I	3451.317	3450.332	270		672		V	I	3455.867	3454.881	3		1000	
V	I	3451.489	3450.504	1		1000		O	III	3455.99	3454.90	10	25.	1015	
CR	III	3451.73	3450.75	5		490		CR	II	3455.96	3454.97	35	136.	340	
NE	I	3451.7537	3450.7650	10		389		O	III	3456.11	3455.12	60	25.	1015	
CR	I	3451.797	3450.811	10		341		P	IV	3456.148	3455.158	40		937	
CR	II	3451.83	3450.84	3	60.	340		BE	I	3456.173	3455.183	100		330	
O	III	3451.93	3450.94	40	25.	1015		V	I	3456.197	3455.211	1		1000	
MN	II	3452.111	3451.123	30		328		CR	I	3456.260	3455.273	20	51.	341	
FE	II	3452.215	3451.228	2	208.	1015		MN	II	3456.501	3455.510	20		328	
CO	III	3452.24	3451.25	10		673		V	I	3456.572	3455.585	1		1000	
N	II	3452.264	3451.277		26.0	521		CR	I	3456.593	3455.607	50	51.	341	
B	II	3452.279	3451.291	1000	1.	532		GE	II	3456.705	3455.716	100		676	
CO	II	3452.30	3451.31	100		825		V	I	3456.79	3455.80	00		1000	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
SC	I	3456.88	3455.89	2		1028		V	I	3461.087	3460.099	1		1000	
CR	I	3457.29	3456.31	1		341		MN	II	3461.307	3460.316	450	3.	328	
FE	I	3457.364	3456.374	1	375.	378		CR	I	3461.414	3460.426	35	141.	341	
TI	II	3457.375	3456.384	5		1007		NE	I	3461.5156	3460.5243	15		389	
TI	II	3457.39	3456.40	20		601		SC	I	3461.67	3460.68	0		1028	
NE	II	3457.5983	3456.6080	100	28.	389		V	III	3461.76	3460.78	0		325	
MN	III	3457.670	3456.680	3		301		SI	V	3462.04	3461.05	40		941	
V	I	3457.903	3456.917	4		1000		CR	II	3462.27	3461.28	M 3	148.	340	
FE	II	3457.917	3456.928	5	76.	1015		N	IV	3462.35	3461.36	20	7.	824	
NE	II	3458.071	3457.080	70		1016		MN	II	3462.454	3461.462	20		328	
FE	I	3458.079	3457.090	9	835.	1015		TI	II	3462.490	3461.498	20	6.	1007	
SC	I	3458.44	3457.45	3		1028		SI	II	3462.633	3461.642	2		678	
FE	I	3458.501	3457.512	3	187.	1015		NI	I	3462.642	3461.652	625	17.	1015	
CR	II	3458.60	3457.61	30	135.	340		V	I	3462.65	3461.66	125		1000	
SE	III	3458.77	3457.79	1000		14		CU	I	3463.124	3462.137	1		672	
MN	II	3458.789	3457.799	40		328		SC	I	3463.18	3462.19	1		1028	
AR	I	3458.791	3457.800	10		517		CR	I	3463.225	3462.237	2		341	
CU	I	3458.837	3457.850	270		672		ZN	III	3463.25	3462.26	30		162	
O	II	3458.98	3457.99	4	81.	1015		MN	II	3463.335	3462.342	20		328	
CR	I	3459.073	3458.085	18	253.	341		FE	I	3463.344	3462.353	6	79.	1015	
ZN	III	3459.14	3458.15	25		162		NA	II	3463.483	3462.492	25		693	
FE	I	3459.293	3458.304	12	139.	1015		CR	II	3463.70	3462.71	6	2.	340	
CR	I	3459.33	3458.34	4		341		NI	I	3463.80	3462.82	10		602	
NI	I	3459.463	3458.474	625	19.	1015		MN	II	3463.88	3462.88	25	12.	328	
C	I	3459.494	3458.503	4	7.1	821		CR	I	3463.882	3462.894	5		341	
TI	II	3460.00	3459.01	0		601		FE	I	3464.296	3463.305	6	48.	1015	
O	II	3460.06	3459.07	1	81.	1015		MN	II	3464.33	3463.34	40	12.	328	
CR	I	3460.13	3459.14	3		341		N	IV	3464.37	3463.37	160	7.	824	
CR	II	3460.27	3459.28	25	136.	340		V	I	3464.380	3463.393	2		1000	
NE	II	3460.3118	3459.3209	100	51.	389		CU	I	3464.487	3463.499	5		672	
MN	III	3460.39	3459.38	1		301		CR	I	3464.499	3463.511	5		341	
CU	I	3460.415	3459.428	25		672		FE	V	3464.50	3463.51			229	F
FE	I	3460.419	3459.429	6	297.	1015		CR	I	3464.604	3463.616	7		341	
P	III	3460.449	3459.458	4		936		AL	II	3464.62	3463.63	1	55.	1015	
O	III	3460.51	3459.52	1	25.	1015		FE	II	3464.965	3463.974	1	4.	1015	
V	III	3460.511	3459.519	2		325		CR	II	3465.00	3464.01	4	2.	340	
FE	I	3460.901	3459.911	12	501.	1015		MN	II	3465.043	3464.050	60	12.	328	
O	III	3460.97	3459.98	10	25.	1015		NI	I	3465.11	3464.12	5		602	
CR	II	3461.02	3460.03	1	60.	340		NE	I	3465.3309	3464.3387	15		389	
MN	II	3461.020	3460.028	220		328		FE	II	3465.488	3464.497	3	114.	1015	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLT	REFERENCE	NOTES
SC	I	3465.66	3464.67	00		1028		MN	II	3469.523	3468.529	8		328	
CR	I	3465.814	3464.825	10	51.	341		FE	II	3469.672	3468.680	8	114.	1015	
FE	I	3465.905	3464.914	3	241.	1015		CR	I	3469.732	3468.742	12		341	
MN	II	3465.921	3464.928	10		328		FE	I	3470.004	3469.012	6	614.	1015	
MN	II	3466.04	3465.04	75	12.	328		MN	III	3470.122	3469.128	7		301	
CR	I	3466.05	3465.06	3		341		MN	II	3470.20	3469.20	30		328	
CR	I	3466.227	3465.248	25	51.	341		FE	I	3470.271	3469.278	0		378	
V	I	3466.232	3465.243	00		1000		NI	I	3470.479	3469.486	75	8.	1015	
CU	I	3466.385	3465.401	50		672		SC	I	3470.64	3469.65	1		1028	
MN	II	3466.517	3465.524	3		328		FE	I	3470.827	3469.834	6	242.	1015	
CR	I	3466.559	3465.571	12	51.	341		HE	I	3471.	3470.	2		126	
TI	II	3466.57	3465.58	3		601		FE	II	3471.235	3470.242	1	89.	1015	
CO	VI	3466.7	3465.7			108	F	O	II	3471.41	3470.42	60	27.	1015	
FE	I	3466.855	3465.863	180	6.	1015		SC	I	3471.57	3470.58	00		1028	
O	III	3467.14	3466.15	10	25.	1015		V	III	3471.610	3470.620	20		325	
CU	I	3467.23	3466.24	25		672		O	II	3471.80	3470.81	150	27.	1015	
CR	II	3467.24	3466.25	2	148.	340		P	III	3471.864	3470.870	40		936	
FE	I	3467.271	3466.279	3	185.	1015		SC	I	3472.12	3471.13	1		1028	
MN	II	3467.33	3466.34	100	12.	328		FE	I	3472.26	3471.27	15	82.	1015	
N	I	3467.489	3466.497	100	2.	521	F	AR	III	3472.31	3471.32	90	6.	79	
FE	I	3467.493	3466.501	9	24.	1015		FE	I	3472.343	3471.350	18	130.	1015	
N	I	3467.535	3466.543	20	2.	521	F	NI	I	3472.62	3471.63	K	124.	1015	
NE	I	3467.5715	3466.5787	30		369		CU	I	3472.738	3471.748	2		672	
MN	II	3467.583	3466.591	15		328		CR	II	3473.05	3472.06	25	135.	340	
O	III	3467.89	3466.90	1	25.	1015		CU	I	3473.132	3472.141	140		672	
MN	II	3467.973	3466.980	10		328		BR	I	3473.182	3472.188	20		757	
CR	I	3468.002	3467.012	20	253.	341		BR	I	3473.210	3472.216	10		757	
V	III	3468.04	3467.05	0		325		MN	II	3473.211	3472.217	30		328	
NI	I	3468.11	3467.12	5	123.	1015		NI	I	3473.539	3472.545	350	20.	1015	
TI	I	3468.263	3467.269	60	84.	1007		NE	I	3473.5654	3472.5711	70	2.	389	
V	II	3468.32	3467.33	2		782		FE	II	3473.880	3472.886	0	156.	1015	
V	III	3468.330	3467.337	30		325		F	II	3473.957	3472.963	650		538	
V	III	3468.50	3467.51	1		325		P	II	3473.971	3472.977	40		496	
FE	I	3468.679	3467.686	1	442.	378		FE	I	3474.010	3473.015	0	576.	378	
CR	I	3468.703	3467.713	22	110.	341		FE	I	3474.297	3473.303	2		378	
NI	I	3468.724	3467.732	20	123.	1015		F	II	3474.306	3473.311	570		538	
MN	II	3468.778	3467.784	5		328		FE	I	3474.491	3473.497	3	26.	1015	
F	II	3469.288	3468.295	90		538		AL	IV	3474.530	3473.536	500		838	
MN	II	3469.374	3468.380	15		328		F	II	3474.618	3473.623	400		538	
CA	I	3469.468	3468.475	33		1018		CU	III	3474.646	3473.651	3		724	

SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPL	REFERENCE	NOTES
FE	II	3474.816	3473.825	2		645		N	IV	3479.70	3478.71	1000	1.	824	
MN	II	3475.032	3474.038	320	3.	328		FE	I	3479.783	3478.788	3	137.	1015	
MN	II	3475.124	3474.129	220	3.	328		NI	I	3480.259	3479.264	15	105.	1015	
P	III	3475.171	3474.177	90		936		NE	II	3480.514	3479.518	150	49.	1016	
CR	III	3475.52	3474.53			893	F P	FE	I	3480.679	3479.683	3	812.	1015	
N	IV	3475.54	3474.55	40	7.	824		SC	III	3480.780	3479.785	12		855	
CU	I	3475.570	3474.578	5		672		FE	II	3480.910	3479.914	2	4.	1015	
CA	I	3475.758	3474.763	50		1018		NI	I	3481.179	3480.183	20	124.	1015	
F	II	3475.775	3474.780	700		538		NI	I	3481.179	3480.183	20	123.	1015	
O	II	3475.93	3474.94	4	8.	1015		SC	I	3481.37	3480.37	1		1030	M
SC	I	3476.02	3475.03	00		1028		TI	I	3481.523	3480.527	120	84.	1007	
CR	II	3476.11	3475.12	20	2.	340		AR	III	3481.55	3480.55	200	2.	1015	
NE	II	3476.253	3475.240	30	35.	1016		BR	II	3481.58	3480.59	0		606	
FE	I	3476.444	3475.450	210	6.	1015		NE	II	3481.715	3480.718	200	49.	1016	
FE	I	3476.645	3475.651	18	78.	1015		V	I	3481.77	3480.78	1		1000	
F	II	3476.674	3475.679	400		538		TI	II	3481.89	3480.89	0		601	
FE	I	3476.861	3475.867	3	186.	1015		SC	III	3482.060	3481.064	10		855	
CU	I	3476.991	3475.999	270		672		FE	I	3482.288	3481.292	1	499.	378	
BR	II	3477.041	3476.046	1		606		CO	VI	3482.5	3481.5			108	
CR	III	3477.28	3476.29			893	F P	FE	I	3482.554	3481.558	3	132.	1015	F
FE	I	3477.331	3476.336	6	835.	1015		CU	I	3482.607	3481.614	5		672	
FE	I	3477.331	3476.336	6	133.	1015		NE	II	3482.9298	3481.9331	200	6.	389	
V	I	3477.34	3476.35	1		489		MN	II	3483.043	3482.046	80	9.	328	
BE	I	3477.559	3476.564	7		333		V	I	3483.180	3482.188	1		1000	
CO	VI	3477.6	3476.6			108	F	CR	II	3483.57	3482.58	12	67.	340	
NI	I	3477.62	3476.63	10	123.	1015		NI	I	3483.73	3482.73	5	120.	1015	
FE	I	3477.699	3476.704	120	6.	1015		MN	II	3483.899	3482.902	320	3.	328	
FE	I	3477.848	3476.853	6	242.	1015		N	IV	3483.99	3482.99	870	1.	824	
TI	II	3477.98	3476.99	00		601		FE	I	3484.002	3483.006	9	24.	1015	
FE	I	3478.002	3477.007	3	139.	1015		NI	I	3484.62	3483.62		120.	1015	
BR	II	3478.015	3477.021	10		606		CU	I	3484.754	3483.761	1		672	
TI	II	3478.176	3477.181	15	6.	1007		NI	I	3484.771	3483.774	125	6.	1015	
P	III	3478.342	3477.346	40		936		TI	II	3484.80	3483.80	4		601	
NE	II	3478.6432	3477.6476	80	21.	389		BR	II	3485.043	3484.046	10		606	
FE	I	3478.845	3477.850	6	82.	1015		AR	III	3485.11	3484.12	30		79	
NI	I	3478.859	3477.864	10	124.	1015		CR	II	3485.13	3484.14	20	2.	340	
CR	II	3479.14	3478.15	3	109.	340		FE	II	3485.345	3484.348	1	115.	1015	
FE	I	3479.377	3478.382	3	185.	1015		FE	I	3485.84	3484.84	3	185.	1015	
SI	V	3479.46	3478.46	80		941		N	IV	3485.96	3484.96	750	1.	824	
CR	III	3479.59	3478.60	50		490		FE	I	3485.97	3484.97	3	138.	1015	



SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES	SPECTRUM		VACUUM WAVELENGTH	AIR WAVELENGTH	INTENSITY	MULTIPLY	REFERENCE	NOTES
P	III	3485.994	3484.997	60		936		FE	II	3494.467	3493.468	10	114.	1015	
FE	I	3486.339	3485.342	21	78.	1015		FE	I	3494.69	3493.69	6	297.	1015	
NI	V	3486.6	3485.6			922	F P	FE	I	3495.15	3494.15	3	137.	1015	
TI	I	3486.665	3485.668	60	84.	1007		CR	II	3495.50	3494.50	4	2.	340	
FE	II	3486.725	3485.728	1	133.	1015		CU	I	3495.50	3494.50	1		672	
V	I	3486.861	3485.867	6		1000		O	II	3495.66	3494.66	0	70.	1015	
NI	I	3486.885	3485.888	50	17.	1015		FE	II	3495.672	3494.672	5	16.	1015	
FE	I	3487.554	3486.556	3	79.	1015		BR	II	3496.258	3495.258	10		606	
FE	VIII	3488.0	3487.0			1034		FE	I	3496.285	3495.285	24	238.	1015	
V	I	3488.003	3487.008	2		1000		CR	II	3496.36	3495.36	25	2.	340	
FE	I	3488.136	3487.138	0		378		O	II	3496.44	3495.44	1	70.	1015	
CR	III	3488.32	3487.32	100		490		CR	II	3496.54	3495.54	20		340	
CU	I	3488.560	3487.566	6		672		FE	II	3496.613	3495.616	4	115.	1015	
CA	I	3488.596	3487.598	70		1018		SI	V	3496.62	3495.62	150		941	
TI	III	3488.667	3487.669	15		227		TI	I	3496.747	3495.746	60	84.	1007	
FE	II	3488.988	3487.990	3	4.	1015		KR	I	3496.9886	3495.9882	10		1012	
CL	VIII	3489.0	3488.0			111		S		3497.	3496.			107	N
O	II	3489.14	3488.14	1	7.	1015	P	FE	I	3497.19	3496.19	3	186.	1015	
NI	I	3489.291	3488.293	10	121.	1015		SC	I	3497.25	3496.25	1		1030	M
TI	III	3489.772	3488.773	3		227		O	II	3497.27	3496.27	4	7.	1015	
P	III	3489.814	3488.816	120		936		BR	I	3497.367	3496.366	5		757	
FE	I	3489.847	3488.849	12	242.	1015		SC	I	3498.05	3497.05	1		1030	M
CU	I	3489.853	3488.858	1		672		AR	III	3498.09	3497.10	40		79	
CR	II	3490.07	3489.07	2	135.	340		FE	I	3498.111	3497.110	30	78.	1015	
CO	II	3490.28	3489.28	25		825		CO	II	3498.28	3497.28	1		825	
CR	II	3490.43	3489.44	2	185.	340		BR	I	3498.434	3497.433	1		757	
V	I	3490.461	3489.466	4		1000		FE	I	3498.844	3497.843	120	6.	1015	
TI	II	3490.74	3489.74	2		601		CU	I	3499.061	3498.063	112		672	
O	IV	3490.83	3489.83	300		86		NE	I	3499.0649	3498.0640	15		389	
V	I	3491.25	3490.25	1		1000		CR	II	3499.30	3498.30	1		340	
FE	I	3491.574	3490.575	300	6.	1015		AR	III	3499.31	3498.31	60	6.	79	
CU	I	3491.953	3490.958	1		672		FE	I	3499.756	3498.755	2	330.	378	
TI	II	3492.048	3491.049	8	6.	1007		SC	I	3499.91	3498.91	2		1028	
P	III	3492.519	3491.520	4		936		CU	I	3499.935	3498.938	3		672	
FE	VI	3493.10	3492.10			228	F	GF	II	3500.212	3499.211	300		676	
AL	IV	3493.225	3492.226	900		888		AR	III	3500.67	3499.67	120	2.	1015	
O	IV	3493.24	3492.24	250		86		FE	II	3500.878	3499.877	4	115.	1015	
P	III	3494.060	3493.061	4		936		CO	II	3500.90	3499.90	1		825	
FE	I	3494.29	3493.29	3	48.	1015		FE	I	3501.165	3500.164	2	327.	378	
O	IV	3494.41	3493.41	25		86		O	II	3501.64	3500.64	0	80.	1015	P



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0000	NAVAL POSTGRADUATE SCHOOL	1 REFERENCES.
0000	MONTEREY, CALIFORNIA 93940	1 REFERENCES.
0000	FOLLOWING IS A LISTING OF THE REFERENCE DECK, IN NUMERICAL ORDER.	1 REFERENCES.
0000	12/15/1977	1 REFERENCES.
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